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Title 47—Telecommunication

(This book contains part 80 to end)

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EDITORIAL NOTE: Nomenclature changes to chapter I appear at 69 FR 18803, Apr. 9, 2004.

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SUPPLEMENTARY PUBLICATIONS: *Annual Reports of the Federal Communications Commission to Congress.*

Federal Communications Commission Reports of Orders and Decision.

Communications Act of 1934 (with amendments and index thereto), Recap. Version May 1989.

Study Guide and Reference Material for Commercial Radio Operator Examinations, May 1987 edition.

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AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. 151–155, 301–609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

SOURCE: 51 FR 31213, Sept. 2, 1986, unless otherwise noted.

Subpart A—General Information

GENERAL

§ 80.1 Basis and purpose.

This section contains the statutory basis for this part of the rules and provides the purpose for which this part is issued.

(a) *Basis*. The rules for the maritime services in this part are promulgated under the provisions of the Communications Act of 1934, as amended, which vests authority in the Federal Communications Commission to regulate radio transmission and to issue licenses for radio stations. The rules in this part are in accordance wtih applicable statutes, international treaties, agreements and recommendations to which the United States is a party. The most significant of these documents are listed below with the short title appearing in parenthesis:

Communications Act of 1934, as amended—(Communications Act).
Communications Satellite Act of 1962, as amended—(Communications Satellite Act).
International Telecommunication Union Radio Regulations, in force for the United States—(Radio Regulations).
Agreement Between the United States of America and Canada for the Promotion of Safety on the Great Lakes by Means of Radio, as amended, and the Technical Regulations annexed thereto—(Great Lakes Radio Agreement).
International Convention for Safety of Life at Sea, 1974, as amended, and the Annex thereto—(Safety Convention).
Vessel Bridge-to-Bridge Radiotelephone Act—(Bridge-to-Bridge Act).

(b) *Purpose*. This part states the conditions under which radio may be licensed and used in the maritime services. These rules do not govern radio stations operated by agencies of the U.S. Government.

§ 80.2 Other regulations that apply.

The Commandant, U.S. Coast Guard has promulgated regulations which affect radiotelecommunication equipment carriage and power source installation requirements for certain ships. Inquiries concerning applicable U.S. Coast Guard regulations are to addressed to the Commandant, U.S. Coast Guard, Washington, DC 20593, or to the nearest District Headquarters Office of the U.S. Coast Guard.

§ 80.3 Other applicable rule parts of this chapter.

Other FCC rule parts applicable to licensees in the maritime services include the following:

(a) *Part 0*. This part describes the Commission's organization and delegations of authority. Part 0 also lists available Commission publications, standards and procedures for access to Commission records and location on Commission monitoring stations.

(b) *Part 1*. This part includes rules of practice and procedure for license applications, adjudicatory proceedings,

procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and forfeiture proceedings; and the environmental processing requirements that, together with the procedures specified in §17.4(c) of this chapter, if applicable, must be complied with prior to the initiation of construction. Subpart Q of part 1 contains rules governing competitive bidding procedures for resolving mutually exclusive applications for certain initial licenses.

(c) *Part 2*. This part contains the Table of Frequency Allocations and special requirements in international regulations, recommendations, agreements, and treaties. This part also contain standards and procedures concerning marketing of radio frequency devices, and for obtaining equipment authorization.

(d) *Part 13*. This part contains information and rules for the licensing of commercial radio operators.

(e) *Part 17*. This part contains requirements for the construction, marking and lighting of antenna towers, and the environmental notification process that must be completed before filing certain antenna structure registration applications.

(f) Part 20 of this chapter which governs commercial mobile radio services which include subpart J of this part (public coast stations).

(g) *Part 21*. This part contains rules concerning point-to-point microwave service authority relating to communication common carriers.

(h) *Part 64*. This part contains miscellaneous rules relating to communication common carriers.

(i) *Part 68*. This part contains technical standards for connection of terminal equipment to the telephone network.

(j) *Part 87*. This part contains rules for the aviation services. Some maritime frequencies are authorized for use by aircraft stations for safety and distress, public correpondence and for operational communications.

(k) *Part 101*. This part contains rules concerning the private microwave service relating to point-to-point communication requirements.

[51 FR 31213, Sept. 2, 1986, as amended at 55 FR 20398, May 16, 1990; 59 FR 18499, Apr. 19, 1994; 63 FR 40062, July 27, 1998; 63 FR 68955, Dec. 14, 1998; 77 FR 3955, Jan. 26, 2012]

§ 80.5 Definitions.

Alaska—public fixed station. A fixed station in Alaska which is open to public correspondence and is licensed by the Commission for radio communication with Alaska-Private fixed stations on paired channels.

Alaska—private fixed station. A fixed station in Alaska which is licensed by the Commission for radio communication within Alaska and with associated ship stations, on single frequency channels. Alaska-private fixed stations are also eligible to communicate with Alaska-public fixed stations on paired channels.

Associated ship unit. A portable VHF transmitter for use in the vicinity of the ship station with which it is associated.

Automated maritime telecommunications system (AMTS). An automatic maritime communications system.

Automated mutual-assistance vessel rescue system (AMVER). An international system, operated by the U.S. Coast Guard, which provides aid to the development and coordination of search and rescue (SAR) efforts. Data is made available to recognized SAR agencies or vessels of any nation for reasons related to marine safety.

Automatic Identification Systems (AIS). A maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities.

Bridge-to-bridge station. A radio station located on a ship's navigational

bridge or main control station operating on a specified frequency which is used only for navigational communications, in the 156–162 MHz band.

Cargo ship safety radio certificate. A certificate issued after a ship passes an inspection of the required radiotelegraph, radiotelephone or GMDSS radio installation. Issuance of this certificate indicates that the vessel complies with the Communications Act and the Safety Convention.

Cargo ship safety radiotelegraphy certificate. A certificate issued after a ship passes an inspection of a radiotelegraph installation. Issuance of this certificate indicates that the vessel complies with the Communications Act and the Safety Convention.

Cargo ship safety radiotelephony certificate. A certificate issued after a ship passes an inspection of a radiotelephone installation. Issuance of this certificate indicates that the vessel complies with the Communications Act and the Safety Convention.

Categories of ships. (1) When referenced in Part II of Title III of the Communications Act or the radio provisions of the Safety Convention, a ship is a *passenger ship* if it carries or is licensed or certificated to carry more than twelve passengers. A *cargo ship* is any ship not a passenger ship.

(2) A *commercial transport vessel* is any ship which is used primarily in commerce (i) for transporting persons or goods to or from any harbor(s) or port(s) or between places within a harbor or port area, or (ii) in connection with the construction, change in construction, servicing, maintenance, repair, loading, unloading, movement, piloting, or salvaging of any other ship or vessel.

(3) The term *passenger carrying vessel,* when used in reference to Part III, Title III of the Communications Act of the Great Lakes Radio Agreement, means any ship transporting more than six passengers for hire.

(4) *Power-driven vessel.* Any ship propelled by machinery.

(5) *Towing vessel.* Any commercial ship engaged in towing another ship astern, alongside or by pushing ahead.

(6) *Compulsory ship.* Any ship which is required to be equipped with radiotelecommunication equipment in order to comply with the radio or radio-navigation provisions of a treaty or statute to which the vessel is subject.

(7) *Voluntary ship.* Any ship which is not required by treaty or statute to be equipped with radiotelecommunication equipment.

Coast station. A land station in the maritime mobile service.

Commercial communications. Communications between coast stations and ship stations aboard commercial transport vessels, or between ship stations aboard commercial transport vessels, which relate directly to the purposes for which the ship is used including the piloting of vessels, movements of vessels, obtaining vessel supplies, and scheduling of repairs.

Day. (1) Where the word *day* is applied to the use of a specific frequency assignment or to a specific authorized transmitter power, its use means transmission on the frequency assignment or with the authorized transmitter power during that period of time included between one hour after local sunrise and one hour before local sunset.

(2) Where the word *day* occurs in reference to watch requirements, or to equipment testing, its use means the calendar day, from midnight to midnight, local time.

Digital selective calling (DSC). A synchronous system developed by the International Telecommunication Union Radiocommunication (ITU–R) Sector, used to establish contact with a station or group of stations automatically by means of radio. The operational and technical characteristics of this system are contained in ITU–R M.493–13 and ITU–R M.541–9 (both incorporated by reference, see § 80.7) (see subpart W of this part.)

Direction finder (radio compass). Apparatus capable of receiving radio signals and taking bearings on these signals from which the true bearing and direction of the point of origin may be determined.

Distress signal. The distress signal is a digital selective call using an internationally recognized distress call format in the bands used for terrestrial communication or an internationally recognized distress message format, in

which case it is relayed through space stations, which indicates that a person, ship, aircraft, or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

(1) In radiotelephony, the international distress signal consists of the enunciation of the word ''Mayday'', pronounced as the French expression ''m'aider''. In case of distress, transmission of this particular signal is intended to ensure recognition of a radiotelephone distress call by stations of any nationality.

(2) For GMDSS, distress alerts result in an audible alarm and visual indication that a ship or person is threatened by grave and imminent danger and requests immediate assistance. These automatic systems contain sufficient information in the distress alert message to identify the vessel, prepare to assist and begin a search. However, except when transmitted via satellite EPIRB, the distress alert is just the initial call for help. Communication between the vessel or person in distress and the Rescue Coordination Center (RCC) or ship assisting should always follow.

Distress traffic. Distress traffic consists of all messages relating to the immediate assistance required by a person, ship, aircraft, or other vehicle in distress, including search and rescue communications and on-scene communications.

Emergency position indicating radiobeacon (EPIRB) station. A station in the maritime mobile service the emissions of which are intended to facilitate search and rescue operations.

Environmental communications. Broadcasts of information about the environmental conditions in which vessels operate, i.e., weather, sea conditions, time signals adequate for practical navigation, notices to mariners, and hazards to navigation.

Fleet radio station license. An authorization issued by the Commission for two or more ships having a common owner or operator.

Global maritime distress and safety system (GMDSS). An International Maritime Organization (IMO) worldwide coordinated maritime distress system designed to provide the rapid transfer of distress messages from vessels in distress to units best suited for giving or coordinating assistance. The system includes standardized equipment and operational procedures, unique identifers for each station, and the integrated use of frequency bands and radio systems to ensure the transmission and reception of distress and safety calls and messages at short, medium and long ranges.

Great Lakes. This term, used in this part in reference to the Great Lakes Radio Agreement, means all of Lakes Ontario, Erie, Huron (including Georgian Bay), Michigan, Superior, their connecting and tributary waters and the St. Lawrence River as far east as the lower exit of the St. Lambert Lock as Montreal in the Province of Quebec, Canada, but does not include any connecting and tributary waters other than: the St. Marys River, the St. Clair River, Lake St. Clair, the Detroit River and the Welland Canal.

Harbor or port. Any place to which ships may resort for shelter, or to load or unload passengers or goods, or to obtain fuel, water, or supplies. This term applies to such places whether proclaimed public or not and whether natural or artifical.

Inland waters. This term, as used in reference to waters of the United States, its territories and possessions, means waters that lie landward of the boundary lines of inland waters as contained in 33 CFR 80.01, as well as waters within its land territory, such as rivers and lakes, over which the United States exercises sovereignty.

INMARSAT. INMARSAT Ltd. is a private commercial company licensed in the United Kingdom.

Marine utility station. A station in the maritime mobile service consisting of one or more handheld radiotelephone units licensed under a single authorization. Each unit is capable of operation while being hand-carried by an individual. The station operates under the rules applicable to ship stations when the unit is aboard a vessel, and under the rules applicable to private coast stations when the unit is on land.

Maritime control communications. Communications between private coast and ship stations or between ship stations licensed to a state or local governmental entity, which relate directly to

the control of boating activities or assistance to ships.

Maritime mobile repeater station. A land station at a fixed location established for the automatic retransmission of signals to extend the range of communication of ship and coast stations.

Maritime mobile-satellite service. A mobile-satellite service in which mobile earth stations are located on board ships. Survival craft stations and EPIRB stations may also participate in this service.

Maritime mobile service. A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations. Survival craft stations and EPIRB stations also participate in this service.

Maritime mobile service identities (MMSI). An international system for the identification of radio stations in the maritime mobile service. The system is comprised of a series of nine digits which are transmitted over the radio path to uniquely identify ship stations, ship earth stations, coast stations, coast earth stations and groups of stations.

Maritime radiodetermination service. A maritime radiocommunication service for determining the position, velocity, and/or other characteristics of an object, or the obtaining of information relating to these parameters, by the propagation properties of radio waves.

Maritime support station. A station on land used in support of the maritime services to train personnel and to demonstrate, test and maintain equipment.

Navigable waters. This term, as used in reference to waters of the United States, its territories and possessions, means the waters shoreward of the baseline of its territorial sea and internal waters as contained in 33 CFR 2.36.

Navigational communications. Safety communications pertaining to the maneuvering of vessels or the directing of vessel movements. Such communications are primarily for the exchange of information between ship stations and secondarily between ship stations and coast stations.

Noncommercial communications. Communication between coast stations and ship stations other than commercial transport ships, or between ship stations aboard other than commercial transport ships which pertain to the needs of the ship.

Non-selectable transponder. A transponder whose coded response is displayed on any conventional radar operating in the appropriate band.

On-board communication station. A low-powered mobile station in the maritime mobile service intended for use for internal communications on board a ship, or between a ship and its lifeboats and life-rafts during lifeboat drills or operations, or for communication within a group of vessels being towed or pushed, as well as for line handling and mooring instructions.

On-board repeater. A radio station that receives and automatically retransmits signals between on-board communication stations.

Open sea. The water area of the open coast seaward of the ordinary low-water mark, or seaward of inland waters.

Operational fixed station. A fixed station, not open to public correspondence, operated by entities that provide their own radiocommunication facilities in the private land mobile, maritime or aviation services.

Passenger ship safety certificate. A certificate issued by the Commandant of the Coast Guard after inspection of a passenger ship which complies with the requirements of the Safety Convention.

Pilot. Pilot means a Federal pilot required by 46 U.S.C. 764, a state pilot required under the authority of 46 U.S.C. 211, or a registered pilot required by 46 U.S.C. 216.

Port operations communications. Communications in or near a port, in locks or in waterways between coast stations and ship stations or between ship stations, which relate to the operational handling, movement and safety of ships and in emergency to the safety of persons.

Portable ship station. A ship station which includes a single transmitter intended for use upon two or more ships.

Private coast station. A coast station, not open to public correspondence, which serves the operational, maritime control and business needs of ships.

Public coast station. A coast station that offers radio communication common carrier services to ship radio stations.

Public correspondence. Any telecommunication which the offices and stations must, by reason of their being at the disposal of the public, accept for transmission.

Radar beacon (RACON). A receiver-transmitter which, when triggered by a radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information.

Radioprinter operations. Communications by means of a direct printing radiotelegraphy system using any alphanumeric code, within specified bandwidth limitations, which is authorized for use between private coast stations and their associated ship stations on vessels of less than 1600 gross tons.

Safety communication. The transmission or reception of distress, alarm, urgency, or safety signals, or any communication preceded by one of these signals, or any form of radiocommunication which, if delayed in transmission or reception, may adversely affect the safety of life or property.

Safety signal. (1) The safety signal is the international radiotelegraph or radiotelephone signal which indicates that the station sending this signal is preparing to transmit a message concerning the safety of navigation or giving important meteorological warnings.

(2) In radiotelegraphy, the international safety signals consists of three repetitions of the group ''TTT,'' sent before the call, with the letters of each group and the successive groups clearly separated from each other.

(3) In radiotelephony, the international safety signal consists of three oral repetitions of ''Security,'' pronounced as the French word ''Securite,'' sent before the call.

(4) For GMDSS, safety calls result in an audible alarm and visual indication that the station sending this signal has a very urgent message to transmit concerning the safety of navigation or giving important meteorological warnings.

Selectable tfransponder. A transponder whose coded response may be inhibited or displayed on a radar on demand by the operator of that radar.

Selective calling. A means of calling in which signals are transmitted in accordance with a prearranged code to operate a particular automatic attention device at the station whose attention is sought.

Ship earth station. A mobile earth station in the maritime mobile-satellite service located on board ship.

Ship or vessel. *Ship* or *vessel* includes every description of watercraft or other artificial contrivance, except aircraft, capable of being used as a means of transportation on water whether or not it is actually afloat.

Ship radio station license. An authorization issued by the Commission to operate a radio station onboard a vessel.

Ship station. A mobile station in the maritime mobile service located onboard a vessel which is not permanently moored, other than a survival craft station.

Station. One or more transmitters or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on radiocommunication services.

Survival craft station. A mobile station in the maritime or aeronautical mobile service intended solely for survival purposes and located on any lifeboat, liferaft or other survival equipment.

Underway. A vessel is underway when it is not at anchor, made fast to the shore, or aground.

Urgency signal. (1) The urgency signal is the international radiotelegraph or radiotelephone signal which indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft, or other vehicle, or of some person on board or within sight.

(2) In radiotelegraphy, the international urgency signal consists of three repetitions of the group ''XXX,'' sent before the call, with the letters of each group and the successive groups clearly separated from each other.

(3) In radiotelephony, the international urgency signal consists of three oral repetitions of the group of words ''PAN PAN'', each word of the group pronounced as the French word ''PANNE'' and sent before the call.

(4) For GMDSS, urgency calls result in an audible alarm and visual indication that the station sending this signal has a very urgent message to transmit concerning the safety of a ship, aircraft, or other vehicle, or of some person on board or within sight.

Vessel traffic service (VTS). A U.S. Coast Guard traffic control service for ships in designated water areas to prevent collisions, groundings and environmental harm.

Watch. The act of listening on a designated frequency.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7417, Mar. 11, 1987; 52 FR 35244, Sept. 18, 1987; 56 FR 3783, Jan. 31, 1991; 57 FR 26778, June 16, 1992; 58 FR 16504, Mar. 29, 1993; 60 FR 35510, July 10, 1995; 63 FR 29658, June 1, 1998; 68 FR 46959, Aug. 7, 2003; 71 FR 60074, Oct. 12, 2006; 72 FR 31194, June 6, 2007; 73 FR 4480, Jan. 25, 2008; 76 FR 67607, Nov. 2, 2011]

§ 80.7 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Federal Communications Commission must publish notice of the change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741–6030 or go to *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.* Also it is available for inspection at the Federal Communications Commission, 445 12th Street, SW., Washington, DC (Reference Information Center), and is available from the sources listed below.

(b) The International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, United Kingdom; *http://www.imo.org;* Tel. +44 (0)20 7735 7611; Fax +44 (0)20 7587 3210; email: *info@imo.org.*

(1) IMO Resolution A.525(13) (''IMO Resolution A.525(13)''), ''Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships,'' including Annex, adopted 17 November 1983, IBR approved for §§ 80.905 and 80.1101.

(2) IMO Maritime Safety Committee (MSC) Resolution MSC.148(77) (''IMO Resolution MSC.148(77)''), ''Adoption of the Revised Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships (NAVTEX),'' adopted on 3 June 2003, IBR approved for §§ 80.905 and 80.1101.

(3) IMO Assembly Resolution A.662(16) (''IMO Resolution A.662(16)''), ''Performance Standards for Float-free Release and Activation Arrangements for Emergency Radio Equipment,'' adopted 19 October 1989, IBR approved for § 80.1101.

(4) IMO Assembly Resolution A.664(16) (''IMO Resolution A.664(16)''), ''Performance Standards for Enhanced Group Call Equipment,'' adopted 19 October 1989, IBR approved for § 80.1101.

(5) IMO Resolution A.694(17) (''IMO Resolution A.694(17)''), ''Recommendation on General Requirements for Shipborne Radio Equipment Forming part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids,'' adopted 6 November 1991, IBR approved for §§ 80.273 and 80.1101.

(6) IMO Resolution MSC.149(77) (''IMO Resolution MSC.149(77)''), ''Adoption of the Revised Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus,'' adopted on 3 June 2003, IBR approved for §§ 80.273 and 80.1101.

(7) IMO Assembly Resolution A.700(17), (''IMO Resolution A.700(17)''), ''Performance Standards for Narrow-band Direct-printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships (MSI) by HF,'' adopted 6 November 1991, IBR approved for § 80.1101.

(8) IMO Assembly Resolution A.801(19) Appendix 13, Annex 5 (''IMO Resolution A.801(19)''), ''Criteria for Use When Providing Inmarsat Shore-Based Facilities for Use in the GMDSS,'' adopted 23 November 1995, IBR approved for § 80.1091.

(9) IMO Assembly Resolution A.802(19) (''IMO Resolution A.802(19)''), ''Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(10) IMO Resolution MSC.247(83) (''IMO Resolution MSC.247(83)''), ''Adoption of Amendments to Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations,'' adopted on 8 October 2007, IBR approved for § 80.1101.

(11) IMO Assembly Resolution A.803(19) (''IMO Resolution A.803(19)''), ''Performance Standards for Shipborne VHF Radio Installations Capable of Voice Communication and Digital Selective Calling,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(12) IMO Resolution MSC.68(68) (''IMO Resolution MSC.68(68)''), ''Adoption of Amendments to Performance Standards for Shipborne Radiocommunications Equipment,'' adopted on 6 June 1997, IBR approved for § 80.1101.

(13) IMO Assembly Resolution A.804(19) (''IMO Resolution A.804(19)''), ''Performance Standards for Shipborne MF Radio Installations Capable of Voice Communication and Digital Selective Calling,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(14) IMO Assembly Resolution A.806(19) (''IMO Resolution A.806(19)''), ''Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(15) IMO Assembly Resolution A.807(19) (''IMO Resolution A.807(19)''), ''Performance Standards for INMARSAT–C Ship Earth Stations Capable of Transmitting and Receiving Direct-Printing Communications,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(16) IMO Assembly Resolution A.808(19) (''IMO Resolution A.808(19)''), ''Performance Standards for Ship Earth Stations Capable of Two-Way Communications,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(17) IMO Assembly Resolution A.809(19) (''IMO Resolution A.809(19)''), ''Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus,'' including Annexes 1 and 2, adopted 23 November 1995, IBR approved for § 80.1101.

(18) IMO Assembly Resolution A.810(19) (''IMO Resolution A.810(19)''), ''Performance Standards for Float-free Satellite Emergency Position-indicating Radio Beacons (EPIRBs) Operating on 406 MHz,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1101.

(19) IMO Resolution MSC.56(66) (''IMO Resolution MSC.56(66)''), ''Adoption of Amendments to Recommendations on Performance Standards for Float-free Satellite Emergency Position-indicating Radio Beacons (EPIRBs) Operating on 406 MHz,'' adopted on 3 June 1996, IBR approved for § 80.1101.

(20) IMO Resolution MSC.120(74) (''IMO Resolution MSC.120(74)''), ''Adoption of Amendments to Performance Standards for Float-free Satellite Emergency Position-indicating Radio Beacons (EPIRBs) Operating on 406 MHz,'' adopted on 31 May 2001, IBR approved for § 80.1101.

(21) IMO Assembly Resolution A.811(19) (''IMO Resolution A.811(19)''), ''Performance Standards for a Shipborne Integrated Radiocommunication System (IRCS) When Used in the GMDSS,'' with Annex, adopted 23 November 1995, IBR approved for § 80.1083.

(22) IMO Assembly Resolution A.1001(25) (''IMO Resolution A.1001(25)''), ''Criteria for the Provision of Mobile Satellite Communication Systems in the Global Maritime Distress and Safety System (GMDSS),'' with Annex, adopted 29 November 2007, IBR approved for § 80.1091.

(23) IMO Resolution MSC.74(69) (''IMO Resolution MSC.74(69)''), ''Adoption of

New and Amended Performance Standards, Annex 3 Recommendation on Performance Standards for an Universal Shipborne Automatic Identification System (AIS),'' adopted 12 May 1998, IBR approved for § 80.1101.

(24) IMO Resolution MSC.80(70) (''IMO Resolution MSC.80(70)''), ''Adoption of New Performance Standards for Radiocommunication Equipment,'' with Annexes, adopted 8 December 1998, IBR approved for § 80.1101.

(25) IMO Resolution MSC.191(79) (''IMO Resolution MSC.191(79)''), ''Performance Standards for the Presentation of Navigation-Related Information on Shipborne Navigational Displays,'' adopted 6 December 2004, IBR approved for §§ 80.273 and 80.1101.

(26) IMO Resolution MSC.192(79) (''IMO Resolution MSC.192(79)''), ''Revised Recommendation on Performance Standards for Radar Equipment,'' adopted 6 December 2004, IBR approved for §§ 80.273 and 80.1101.

(27) IMO Circular MSC/Circ.1040 (''IMO Circular MSC/Circ.1040''), ''Guidelines on annual testing of 406 MHz satellite EPIRBs'' adopted 28 May 2002, IBR approved for § 80.1085.

(c) The International Telecommunication Union (ITU), Place des Nations, CH–1211, Geneva 20, Switzerland; *www.itu.int*; Voice: +41 22 730 5111; Fax: +41 22 733 7256; email: *itumail@itu.int*.

(1) ITU–R Recommendation M.476–5 (''ITU–R M.476–5''), ''Direct-Printing Telegraph Equipment in the Maritime Mobile Service,'' with Annex, 1995, IBR approved for §§ 80.219 and 80.225.

(2) ITU–R Recommendation M.492–6 (''ITU–R M.492–6''), ''Operational Procedures for the use of Direct-Printing Telegraph Equipment in the Maritime Mobile Service,'' with Annex, 1995, IBR approved for § 80.142.

(3) ITU–R Recommendation M.493–13, (''ITU–R M.493–13''), ''Digital Selective-calling System for Use in the Maritime Mobile Service,'' with Annexes 1, 2, 3, and 4 (10/2009), IBR approved for §§ 80.5, 80.179, 80.225, 80.1101, and 80.1113.

(4) ITU–R Recommendation M.540–2 (''ITU–R M.540–2''), ''Operational and Technical Characteristics for an Automated Direct-printing Telegraph System for Promulgation of Navigational and Meteorological Warnings and Urgent Information to Ships,'' including Annexes, 1990, IBR approved for §§ 80.905, 80.1101, and 80.1135.

(5) ITU–R Recommendation M.541–9 (''ITU–R M.541–9'') ''Operational Procedures for the Use of Digital Selective-Calling Equipment in the Maritime Mobile Service,'' with Annexes 1 through 5, 2004, IBR approved for §§ 80.5, 80.103, 80.179, 80.225, 80.359, 80.1101, 80.1113, and 80.1117.

(6) ITU–R Recommendation M.625–3 (''ITU–R M.625–3''), ''Direct-Printing Telegraph Equipment Employing Automatic Identification in the Maritime Mobile Service,'' with Annex, 1995, IBR approved for §§ 80.219, 80.225, 80.1125, 80.1127, 80.1131, and 80.1133.

(7) ITU–R Recommendation M.628–4 (''ITU–R M.628–4''), ''Technical Characteristics for Search and Rescue Radar Transponders,'' with Annexes, 2006, IBR approved for §§ 80.1101 and 80.1129.

(8) ITU–R Recommendation M.633–3 (''ITU–R M.633–3''), ''Transmission characteristics of a satellite emergency position-indicating radiobeacon (satellite EPIRB) system operating through a low polar-orbiting satellite system in the 406 MHz band,'' 2004, IBR approved for § 80.1101.

(9) ITU–R Recommendation M.824–3 (''ITU–R M.824–3''), ''Technical Parameters of Radar Beacons (RACONS),'' with Annexes, 2007, IBR approved for § 80.605.

(10) ITU–R Recommendation M.1177–3 (''ITU–R M.1177–3''), ''Techniques for measurement of unwanted emissions of radar systems,'' June 2003, IBR approved for §§ 80.273 and 80.1101.

(11) ITU–R Recommendation M.1371–3 (''ITU–R M.1371–3''), ''Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band,'' with Annexes, 2007, IBR approved for § 80.1101.

(12) ITU–T Recommendation E.161 (''ITU–T E.161''), ''Series E: Overall Network Operation, Telephone Service, Service Operation and Human Factors: International Operation-Numbering Plan of the International Telephone Service: Arrangement of Digits, Letters and Symbols on Telephones and Other Devices that Can Be Used for Gaining Access to a Telephone Network'' (02/2001), IBR approved for § 80.1101.

(13) ITU–T Recommendation E.164.1 (''ITU–T E.164.1''), ''Series E: Overall Network Operation, Telephone Service, Service Operation and Human Factors: International Operation—Numbering Plan of the International Telephone Service: Criteria and Procedures for the Reservation, Assignment, and Reclamation of E.164 Country Codes and Associated Identification Codes (ICs)'' (09/2008), IBR approved for § 80.1101.

(d) The International Electrotechnical Commission (IEC), 3 Rue de Varembe, CH–1211, Geneva 20, Switzerland; *www.iec.ch*; phone: +41 22 919 02 11; fax: +41 22 919 03 00; email: *info@iec.ch*. (IEC publications can also be purchased from the American National Standards Institute (ANSI) through its NSSN operation (*www.nssn.org*), at Customer Service, American National Standards Institute, 25 West 43rd Street, New York NY 10036, telephone (212) 642–4900.)

(1) IEC 60092–101:1994+A1:1995 (''IEC 60092–101''), Edition 4.1, 2002–08, ''Electrical installations in ships—Part 101: Definitions and general requirements,'' IBR approved for § 80.1101.

(2) IEC 60533:1999(E) (''IEC 60533''), Second edition, 1999–11, ''Electrical and electronic installations in ships—Electromagnetic compatibility,'' IBR approved for § 80.1101.

(3) IEC 60945:2002 (''IEC 60945''), Fourth edition, 2002–08, ''Maritime navigation and radiocommunication equipment and systems–General requirements–Methods of testing and required test results,'' with Annexes, IBR approved for §§ 80.273 and 80.1101.

(4) IEC 61097–1:2007(E) (''IEC 61097–1''), Second edition, 2007–06, ''Global maritime distress and safety system (GMDSS)—Part 1: Radar transponder—Marine search and rescue (SART)—Operational and performance requirements, methods of testing and required test results,'' with Annexes, IBR approved for § 80.1101.

(5) IEC 1097–3:1994 (''IEC 61097–3''), First edition, 1994–06, ''Global maritime distress and safety system (GMDSS)—Part 3: Digital selective calling (DSC) equipment—Operational and performance requirements, methods of testing and required testing results,'' with Annexes, IBR approved for § 80.1101.

(6) IEC 61097–4 (''IEC 61097–4''), Edition 2.0, 2007–10, ''Global maritime distress and safety system (GMDSS)—Part 4: INMARSAT–C ship earth station and INMARSAT enhanced group call (EGC) equipment—Operational and performance requirements, methods of testing and required test results,'' IBR approved for § 80.1101.

(7) IEC 61097–6:2005(E) (''IEC 61097–6''), Second edition, 2005–12, ''Global maritime distress and safety system (GMDSS)—Part 6: Narrowband direct-printing telegraph equipment for the reception of navigational and meteorological warnings and urgent information to ships (NAVTEX),'' IBR approved for § 80.1101.

(8) IEC 1097–7:1996 (''IEC 61097–7''), First edition, 1996–10, ''Global maritime distress and safety system (GMDSS)—Part 7: Shipborne VHF radiotelephone transmitter and receiver—Operational and performance requirements, methods of testing and required test results,'' IBR approved for § 80.1101.

(9) IEC 61097–8:1998(E) (''IEC 61097–8''), First edition, 1998–09, ''Global maritime distress and safety system (GMDSS)—Part 8: Shipborne watchkeeping receivers for the reception of digital selective calling (DSC) in the maritime MF, MF/HF, and VHF bands—Operational and Performance Requirements, Methods of Testing and Required Test Results,'' with Annexes, IBR approved for § 80.1101.

(10) IEC 61097–9:1997(E) (''IEC 61097–9''), First edition, 1997–12, ''Global maritime distress and safety system (GMDSS)—Part 9: Shipborne transmitters and receivers for use in the MF and HF bands suitable for telephony, digital selective calling (DSC) and narrow band direct printing (NBDP)—Operational and performance requirements, methods of testing and required test results,'' with Annexes, IBR approved for § 80.1101.

(11) IEC 61097–10:1999(E) (''IEC 61097–10''), First edition, 1999–06, ''Global maritime distress and safety system (GMDSS)—Part 10: INMARSAT–B ship earth station equipment—Operational and performance requirements, methods of testing and required test results,'' with Annexes, IBR approved for § 80.1101.

(12) IEC 1097–12:1996(E) (''IEC 61097–12''), First edition, 1996–11, ''Global maritime distress and safety system (GMDSS)—Part 12: Survival craft portable two-way VHF radiotelephone apparatus—Operational and performance requirements, methods of testing and required test results,'' IBR approved for § 80.1101.

(13) IEC 61097–13:2003(E) (''IEC 61097–13''), First edition, 2003–05, ''Global maritime distress and safety system (GMDSS)—Part 13: INMARSAT F77 ship earth station equipment—Operational and performance requirements, methods of testing and required test results,'' IBR approved for § 80.1101.

(14) IEC 61162–1:2007(E) (''IEC 61162–1''), Third edition, 2007–04, ''Maritime navigation and radiocommunication equipment and systems—Digital interfaces—Part 1: Single talker and multiple listeners,'' IBR approved for § 80.1101.

(15) IEC 61993–2:2001(E) (''IEC 61993–2''), First edition, 2001–12, ''Maritime navigation and radiocommunication equipment and systems—Automatic identification systems (AIS)—Part 2: Class A shipborne equipment of the universal automatic identification system (AIS)—Operational and performance requirements, methods of test and required test results,'' with Annexes, IBR approved for § 80.1101.

(16) IEC 62238:2003(E) (''IEC 62238''), First edition, 2003–03, ''Maritime navigation and radiocommunication equipment and systems—VHF radiotelephone equipment incorporating Class ''D'' Digital Selective Calling (DSC)—Methods of testing and required test results,'' IBR approved for § 80.225.

(17) IEC 62252:2004(E) (''IEC 62252''), First edition, 2004–07, ''Maritime navigation and radiocommunication equipment and systems—Radar for craft not in compliance with IMO SOLAS Chapter V—Performance requirements, methods of test and required test results,'' IBR approved for § 80.273.

(18) IEC 62287–1:2006(E) (''IEC 62287–1''), First edition, 2006–03, ''Maritime navigation and radiocommunication equipment and systems–Class B shipborne equipment of the Automatic Identification System–Part 1: Carrier–sense time division multiple access (CSTDMA) techniques,'' IBR approved for § 80.231.

(19) IEC 62388 (''IEC 62388''), Edition 1.0, 2007–12, ''Maritime navigation and radiocommunication equipment and systems–Shipborne radar–Performance requirements, methods of testing and required test results,'' IBR approved for §§ 80.273 and 80.1101.

(e) The International Organization for Standardization (ISO), 1, ch. De la Voie-Creuse, CP 56, CH–1211, Geneva 20, Switzerland; *www.iso.org*; Tel.: +41 22 749 01 11; Fax: +41 22 733 34 30; email: *central&iso.org*. (ISO publications can also be purchased from the American National Standards Institute (ANSI) through its NSSN operation (*www.nssn.org*), at Customer Service, American National Standards Institute, 25 West 43rd Street, New York NY 10036, telephone (212) 642–4900.)

(1) ISO Standard 3791 (''ISO Standard 3791''), ''Office Machines and Data Processing Equipment—Keyboard Layouts for Numeric Applications,'' First Edition 1976(E), IBR approved for § 80.1101.

(2) [Reserved]

(f) The Radio Technical Commission for Maritime Services (RTCM), 1800 N. Kent Street, Suite 1060, Arlington, VA 22209; *www.rtcm.org*; telephone (703) 527–2000; email *pubs@rtcm.org*.

(1) RTCM Paper 56–95/SC101–STD (''RTCM Paper 56–95/SC101–STD''), ''RTCM Recommended Minimum Standards for Digital Selective Calling (DSC) Equipment Providing Minimum Distress and Safety Capability,'' Version 1.0, August 10, 1995, IBR approved for § 80.225.

(2) RTCM 11000.2 (''RTCM 11000.2''), RTCM paper 77–2002/SC110–STD, ''RTCM Standard 11000.2 for 406 MHz Satellite Emergency Position-Indicating Radiobeacons (EPIRBs),'' Version 2.1, June 20, 2002, IBR approved for § 80.1061.

(3) RTCM 11020.1 (''RTCM 11020.1''), RTCM Paper 222–2009–SC110–STD), ''RTCM Standard 11020.0, Ship Security Alert Systems (SSAS) Using the Cospas-Sarsat System,'' October 9, 2009, IBR approved for § 80.277.

(g) COSPAS–SARSAT—International Satellite System for Search and Rescue, 700 de la Gauchetiere West, Suite

2450, Montreal, Quebec H3B 5 M2, Canada, telephone +1-(514) 954–6761, *www.cospas-sarsat.org*.

(1) COSPAS–SARSAT Standard C/S T.001 (''COSPAS–SARSAT Standard C/S T.001''), ''Specification for COSPAS–SARSAT 406 MHz Distress Beacons,'' Issue 3—Revision 10, October 2009, IBR approved for § 80.1061.

(2) COSPAS–SARSAT Standard C/S T.007 (''COSPAS–SARSAT Standard C/S T.007''), ''COSPAS–SARSAT 406 MHz Distress Beacon Type Approval Standard,'' Issue 4—Revision 4, October 2009, IBR approved for § 80.1061.

[76 FR 67607, Nov. 2, 2011]

Subpart B—Applications and Licenses

§ 80.11 Scope.

This subpart contains the procedures and requirements for the filing of applications for licenses to operate radio facilities in the maritime services. part 1 of the Commission's rules contains the general rules of practice and procedure applicable to proceedings before the FCC.

§ 80.13 Station license required.

(a) Except as noted in paragraph (c) of this section, stations in the maritime service must be licensed by the FCC either individually or by fleet.

(b) One ship station license will be granted for operation of all maritime services transmitting equipment on board a vessel. Radiotelegraph and narrow-band directing-printing equipment will not be authorized, however, unless specifically requested by the applicant.

(c) A ship station is licensed by rule and does not need an individual license issued by the FCC if the ship station is not subject to the radio equipment carriage requirements of any statute, treaty or agreement to which the United States is signatory, the ship station does not travel to foreign ports, and the ship station does not make international communications. A ship station licensed by rule is authorized to transmit radio signals using a marine radio operating in the 156–162 MHz band, any type of AIS, any type of EPIRB, and any type of radar installation. All other transmissions must be authorized under a ship station license. Even though an individual license is not required, a ship station licensed by rule must be operated in accordance with all applicable operating requirements, procedures, and technical specifications found in this part.

[61 FR 58010, Nov. 12, 1996, as amended at 62 FR 40304, July 28, 1997; 71 FR 60074, Oct. 12, 2006]

§ 80.15 Eligibility for station license.

(a) *General*. A station license cannot be granted to or held by a foreign government or its representative.

(b) *Public coast stations and Alaska-public fixed stations*. A station license for a public coast station or an Alaska-public fixed station cannot be granted to or held by:

(1) Any alien or the representative of any alien;

(2) Any foreign government or its representative;

(3) Any corporation organized under the laws of any foreign government;

(4) Any corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or its representative, or by a corporation organized under the laws of a foreign country; or

(5) Any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or its representatives, or by any corporation organized under the laws of a foreign country, if the Commission finds that the public interest will be served by the refusal or revocation of such license.

(c) *Private coast and marine utility stations*. The supplemental eligibility requirements for private coast and marine utility stations are contained in § 80.501(a).

(d) *Ship stations*. A ship station license may only be granted to:

(1) The owner or operator of the vessel;

(2) A subsidiary communications corporation of the owner or operator of the vessel;

(3) A State or local government subdivision; or

(e) A 406.0–406.1 MHz EPIRB may be used by any ship required by U.S. Coast Guard regulations to carry an EPIRB or by any ship that is equipped with a VHF ship radio station.

[51 FR 31213, Sept. 2, 1986, as amended at 53 FR 37308, Sept. 26, 1988; 58 FR 33344, June 17, 1993; 61 FR 55581, Oct. 28, 1996; 68 FR 46960, Aug. 7, 2003; 69 FR 64671, Nov. 8, 2004; 73 FR 4480, Jan. 25, 2008; 76 FR 67610, Nov. 2, 2011]

§ 80.17 Administrative classes of stations.

(a) Stations in the Maritime Mobile Service are licensed according to class of station as follows:

(1) Public coast stations.

(2) Private coast stations.

(3) Maritime support stations.

(4) *Ship stations*. The ship station license may include authority to operate other radio station classes aboard ship such as; radionavigation, on-board, satellite, EPIRB, radiotelephone, radiotelegraph and survival craft.

(5) Marine utility stations.

(b) Stations on land in the Maritime Radiodetermination Service are licensed according to class of station as follows:

(1) Shore radiolocation stations.

(2) Shore radionavigation stations.

(c) Fixed stations in the Fixed Service associated with the maritime services are licensed as follows:

(1) Operational fixed stations.

(2) Alaska-public fixed stations.

(3) Alaska-private fixed stations.

§ 80.21 Supplemental information required.

Applications must contain supplementary information as indicated in this section. Other supplemental information may be required by other rule sections of this part concerning particular maritime services.

(a) Each application for a new public coast station operating on frequencies in the band 156–162 MHz must include as supplementary information a chart, with supporting data, showing the service area contour computed in accordance with subpart P of this part.

(b) Each application for a new public coast station operating on frequencies in the band 156–162 MHz to be located within the coordination boundaries of ''Arrangement ''A'' of the Canada/U.S.A. Frequency Coordination Agreement above 30 MHz'', must comply with the provisions of the ''Canada/U.S.A. Channeling Agreement for VHF Maritime, Public Correspondence'' as contained in § 80.57.

(c) A new station on a vessel not located in the United States must not be documented or otherwise registered by any foreign authority. The foreign authorities where the vessel is located will not or cannot license the vessel radio equipment and can not object to the licensing of the equipment by the United States. An applicant must provide verification of these facts upon request by the Commission.

[51 FR 31213, Sept. 2, 1986, as amended at 60 FR 50122, Sept. 28, 1995; 62 FR 55533, Oct. 27, 1997; 63 FR 68955, Dec. 14, 1998]

§ 80.25 License term.

(a) Licenses for ship stations in the maritime services will normally be issued for a term of ten years from the date of original issuance, or renewal.

(b) Licenses other than ship stations in the maritime services will normally be issued for a term of ten years from the date of original issuance, major modification, or renewal.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 68062, Dec. 23, 1993; 62 FR 40304, July 28, 1997; 63 FR 40062, July 27, 1998; 63 FR 68955, Dec. 14, 1998; 65 FR 77823, Dec. 13, 2000; 78 FR 25175, Apr. 29, 2013]

§ 80.31 Cancellation of license.

Wireless telecommunications carriers subject to this part must comply with the discontinuance of service provisions of part 63 of this chapter.

[63 FR 68955, Dec. 14, 1998]

§ 80.37 One authorization for a plurality of stations.

Marine utility stations. One station license may be issued to authorize a designated maximum number of marine utility stations operating at temporary unspecified locations, normally in multiples of ten stations when:

(a) The licensee of each station is the same; and

(b) The authorized area of operation of each station is the same.

§ 80.39 Authorized station location.

This section describes the circumstances under which a coast station location is classified as permanent or temporary unspecified.

(a) *Permanent*. Whenever a station is to transmit from a single location, the station location is *permanent* and the location must be shown on the application.

(b) *Temporary unspecified*. Whenever a station is to transmit from unspecified locations within a prescribed geographical area, the station location is *temporary unspecified* and the proposed geographical operating area must be shown on the application.

§ 80.41 Control points and dispatch points.

This section applies to coast or fixed stations at permanent locations.

(a) Applicants must provide the address or location of the control point where station records will be kept.

(b) When the address or location of a control point where station records are kept is to be changed, the licensee must request a modification of the station license.

(c) Control points not collocated with station records and dispatch points may be installed and used without obtaining any authorization from the Commission.

§ 80.43 Equipment acceptable for licensing.

Transmitters listed in § 80.203 must be authorized for a particular use by the Commission based upon technical requirements contained in subparts E and F of this part, except for transmitters that are used on vessels in the Maritime Security Fleet and are deemed to satisfy all Commission equipment certification requirements pursuant to section 53108(c) of Title 46 of the United States Code.

[73 FR 4480, Jan. 25, 2008]

§ 80.45 Frequencies.

For applications other than ship stations, the applicant must propose frequencies and ensure that those requested frequencies are consistent with the applicant's eligibility, the proposed class of station operation, and the frequencies available for assignment as contained in subpart H of this part.

[63 FR 68955, Dec. 14, 1998]

§ 80.47 Operation during emergency.

A station may be used for emergency communications when normal communication facilities are disrupted. The Commission may order the discontinuance of any such emergency communication service.

§ 80.49 Construction and regional service requirements.

(a) *Public coast stations*. (1) Each VHF public coast station geographic area licensee must notify the Commission of substantial service within its region or service area (subpart P) within five years of the initial license grant, and again within ten years of the initial license grant in accordance with § 1.946 of this chapter. ''Substantial'' service is defined as service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal. For site-based VHF public coast station licensees, when a new license has been issued or additional operating frequencies have been authorized, the licensee must notify the Commission in accordance with § 1.946 of this chapter that the station or frequencies authorized have been placed in operation within twelve months from the date of the grant.

(2) For LF, MF, and HF band public coast station licensees, when a new license has been issued or additional operating frequencies have been authorized, if the station or frequencies authorized have not been placed in operation within twelve months from the date of grant, the authorization becomes invalid and must be returned to the Commission for cancellation.

(3) Each AMTS coast station geographic area licensee must make a showing of substantial service within its service area within ten years of the initial license grant, or the authorization becomes invalid and must be returned to the Commission for cancellation. ''Substantial'' service is defined as service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal. For site-based

AMTS coast station licensees, when a new license has been issued or additional operating frequencies have been authorized, if the station or frequencies authorized have not been placed in operation within two years from the date of the grant, the authorization becomes invalid and must be returned to the Commission for cancellation.

(b) *Public fixed stations.* When a new license has been issued or additional operating frequencies have been authorized, the licensee must notify the Commission in accordance with § 1.946 of this chapter that the station or frequencies authorized have been placed in operation within twelve months from the date of the grant.

[63 FR 68955, Dec. 14, 1998, as amended at 65 FR 77823, Dec. 13, 2000; 67 FR 48563, July 25, 2002]

§ 80.51 Ship earth station licensing.

A ship earth station must display the Commission license.

[73 FR 4480, Jan. 25, 2008]

§ 80.53 Application for a portable ship station license.

The Commission may grant a license permitting operation of a portable ship station aboard different vessels of the United States.

[63 FR 68956, Dec. 14, 1998]

§ 80.54 Automated Maritime Telecommunications System (AMTS)—System Licensing.

AMTS licensees will be issued blanket authority for a system of coast stations and mobile units (subscribers). AMTS applicants will specify the maximum number of mobile units to be placed in operation during the license period.

[56 FR 3783, Jan. 31, 1991]

§ 80.55 Application for a fleet station license.

(a) An applicant may apply for licenses for two or more radiotelephone stations aboard different vessels on the same application. Under these circumstances a fleet station license may be issued for operation of all radio stations aboard the vessels in the fleet.

(b) The fleet station license is issued on the following conditions:

(1) The licensee must keep a current list of vessel names and registration numbers authorized by the fleet license;

(2) The vessels do not engage in voyages to any foreign country;

(3) The vessels are not subject to the radio requirements of the Communications Act or the Safety Convention.

§ 80.57 Canada/U.S.A. channeling arrangement for VHF maritime public correspondence.

(a) *Canada/U.S.A. arrangement.* Pursuant to arrangements between the United States and Canada, assignment of VHF frequencies in the band 156–162 MHz to public coast stations in certain areas of Washington state, the Great Lakes and the east coast of the United States must be made in accordance with the provisions of this section.

(b) *Definitions.* On the west coast, specific terms are defined as follows:

(1) *Inland Waters Public Correspondence Sector.* A distinct geographical area in which one primary and one supplementary channel is allotted. A number of local channels may also be authorized.

(2) *Coastal Waters Public Correspondence Sector.* A distinct geographical area in which one primary and one supplementary channel is allotted. Local channels may also be authorized.

(3) *Inland waters.* Inland waters of western Washington and British Columbia bounded by 47 degrees latitude on the south, the Canada/U.S.A. Coordination Zone Line B on the north, and to the west by 124 degrees 40 minutes longitude at the west entrance to the Strait of Juan de Fuca.

(4) *Coastal waters.* Waters along the Pacific Coast of Washington state and Vancouver Island within the Canada/U.S.A. Coordination Zone.

(5) *Inland Waters Primary Channel.* A channel intended to cover the greater portion of an Inland Waters Public Correspondence Sector. It may provide some coverage to an adjacent sector but must not provide coverage beyond the adjacent sector. Harmful interference beyond the adjacent sector must not occur. Only one primary

channel will be authorized in any sector.

(6) Inland waters of western Washington and British Columbia bounded by 46°59′59.3″ north latitude on the south, the Canada/U.S.A. Coordination Zone Line B on the south, and to the west by 124°40′4.7″ west latitude at the west entrance to the Strait of Juan de Fuca.

NOTE: All coordinates are referenced to North American Datum 1983 (NAD83).

(7) *Inland Waters Local Channel.* A channel designed to provide local coverage of certain bays, inlets and ports where coverage by primary or supplementary channels is poor or where heavy traffic loading warrants. A local channel must not cause harmful interference to any primary or supplementary channels. Coverage must be confined to the designated sector.

(8) *Coastal Waters Primary Channel.* Same as (5) except for technical characteristics.

(9) *Coastal Waters Supplementary Channel.* Same as (6) except for technical characteristics.

(10) *Coastal Waters Local Channel.* Same as (7) except for technical characteristics.

(c) *Technical characteristics.* On the west coast, technical characteristics of public correspondence stations will be as follows:

(1) *Inland Waters Primary and Supplementary Channels.* The effective radiated power (ERP) must not exceed 60 watts. Antenna height must not exceed 152 meters (500 feet) above mean sea level (AMSL) with the exceptions noted in paragraph (d)(5) of this section.

(2) *Inland Waters Local Channel.* ERP must not exceed 8 watts with an antenna height of no more than 15 meters (50 feet) AMSL or the ERP must not exceed 2 watts with an antenna height of no more than 30 meters (100 feet) AMSL.

(3) *Coastal Waters Primary and Supplementary Channels.* ERP must not exceed 125 watts with no antenna restrictions.

(4) *Coastal Waters Local Channel.* ERP must not exceed 10 watts with a maximum antenna height of 76 meters (250 feet) AMSL.

(5) Harmful interference will be determined and resolved using the definition and procedures of the ITU Radio Regulations.

(6) To keep the ERP and antenna elevations at a minimum and to limit coverage to the desired areas, an informal application may be filed for special temporary authority in accordance with §§1.41 and 1.931 of this chapter to conduct a field survey to obtain necessary data for informal application. Such data may accompany the application and be used in lieu of theoretical calculations as required in subpart P of this part. The Seattle FCC District Office must be notified in advance of scheduled tests.

(d) *Canada/U.S.A. channeling arrangement for West Coast VHF maritime mobile public correspondence.* (1) The provisions of the Canada/U.S. channeling arrangement apply to waters of the State of Washington and of the Province of British Columbia within the coordination boundaries of ''Arrangement A'' of the Canada/U.S.A. Frequency Coordination Agreement above 30 MHz. In addition, all inland waters as far south as Olympia are to be included. A map of these waters is contained in paragraph (d)(6) of this section, Figure 1.

(2) The channeling arrangement applies to the following VHF public correspondence channels: Channels 24, 84, 25, 85, 26, 86, 27, 87 and 28.

(3) Public correspondence stations may be established by either country in accordance with the provisions of the arrangements. However, there must be an exchange of information prior to the establishment of new stations or a change in technical parameters of existing stations. Any channel except that used as primary or supplementary channel in a given sector is available for use as a local channel in that sector. Local channels are not protected from interference caused by primary or supplementary channels in adjacent sectors if these stations are in compliance with this section.

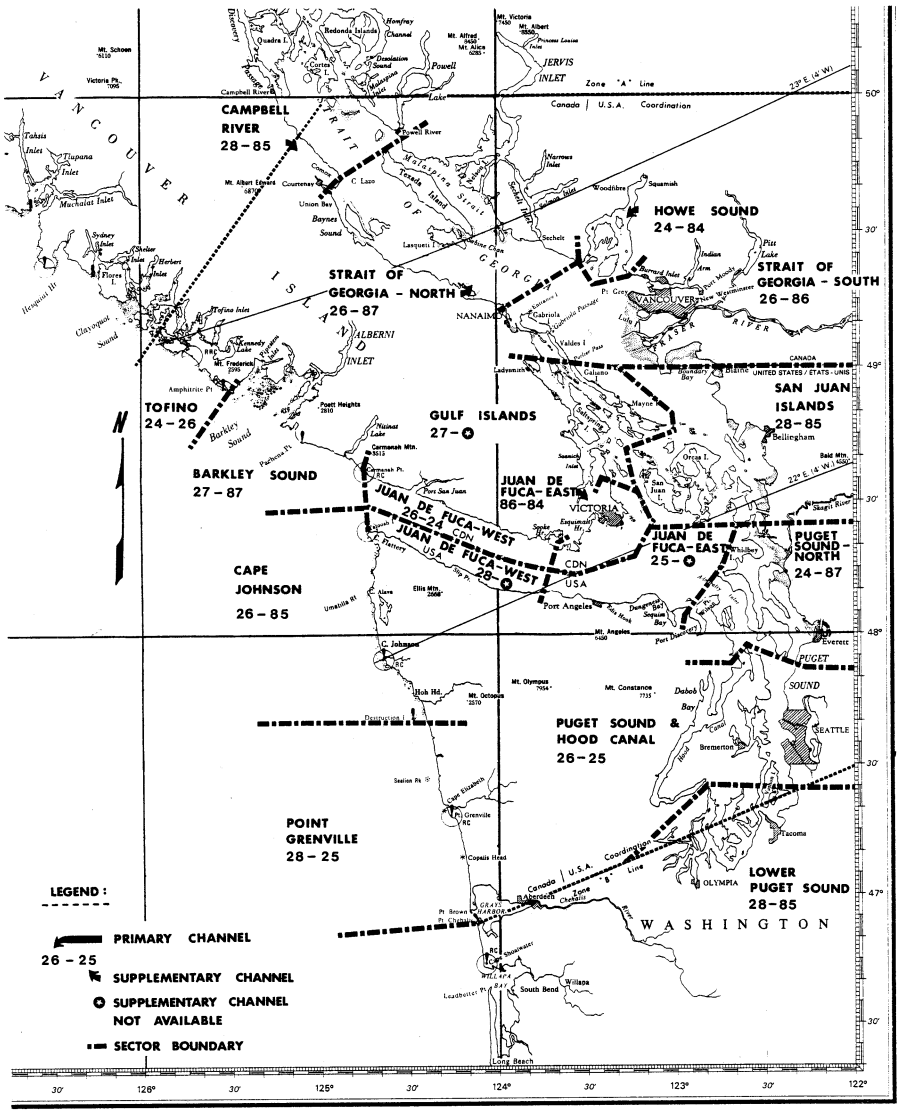
(4) Preliminary local Canadian/U.S. coordination is required for all applications at variance with this section. This coordination will be in accordance with the provisions of Arrangement ''A'' of the Canada/U.S. Frequency Coordination Agreement over 30 MHz.

Stations at variance with the arrangement are not protected from interference and must not cause interference to existing or future stations which are in accordance with the agreement.

(5) The agreed channeling arrangements for the west coast are as follows:

Public correspondence sector	Primary channel	Supplementary channel
British Columbia (Coastal Waters):		
Tofino	24	26
Barkley Sound	27	87
British Columbia (Inland Waters)		
Juan de Fuca West (Canada)	26	24
Juan de Fuca East (Canada)	86	84
Gulf Islands	27	[1]
Strait of Georgia South	26	86
Howe Sound	24	84
Strait of Georgia North	26	87
Campbell River	28	85
Washington (Coastal Waters):		
Cape Johnson	26	85
Point Grenville	28	25
Washington (Inland Waters):		
Juan de Fuca West (U.S.A.)	28	[1]
Juan de Fuca East (U.S.A.)	25	[1]
San Juan Islands	28	85
Puget Sound North	24	87
Puget Sound Hood Canal	26	25
Lower Puget Sound	28	85

[1] Supplementary channel not available.



(e) *Canada/U.S.A. VHF channeling arrangement on the Great Lakes and the St. Lawrence Seaway*. Channels on the Great Lakes and the St. Lawrence Seaway will be assigned as follows:

(1) The provisions of the arrangement apply to the waters of the Great Lakes and the St. Lawrence Seaway within the coordination boundaries of ''Arrangement A'' of the Canada/U.S.A. Frequency Coordination Agreement above 30 MHz.

(2) The arrangement applies to the following public correspondence channels: Channels 24, 84, 25, 85, 26, 86, 27, 87, 28, and 88.

(3) Canada and the U.S.A. use the following channeling arrangement:

(i) Canadian channels: 24, 85, 27, 88 (Note 1).

(ii) U.S.A. channels: 84, 25, 86, 87, 28 (Note 2).

(iii) Shared channels: 26 (Note 3).

NOTES: 1. Also assignable to U.S. Stations within the frequency coordination zone following successful coordination with Canada.

2. Also assignable to Canadian station within the frequency coordination zone following successful coordination with the United States.

3. Changes to existing assignments and new assignments within the frequency coordination zone of either country are subject to prior coordination with the other Administration.

(f) *Canada/U.S.A. channeling arrangement for East Coast VHF maritime mobile public correspondence.* For purposes of this section, channels on the east coast will be assigned as follows:

(1) The provisions of the arrangement apply to the Canadian and U.S.A. east coast waters including the St. Lawrence Seaway within the coordination boundaries of ''Arrangement A'' of the Canada/U.S.A. Frequency Coordination Agreement above 30 MHz.

(2) The arrangement applies to the following public correspondence channels: Channels 24, 84, 25, 85, 26, 86, 27, 87, 28, and 88.

(3) Canada and the U.S.A. use the following channeling arrangement:

(i) Canadian channels: 24, 85, 27, 88 (Note 1).

(ii) U.S.A. channels: 84, 25, 86, 87, 28 (Note 2).

(iii) Shared channel: 26 (Note 3).

NOTES: 1. Also assignable to U.S. stations within the frequency coordination zone following successful coordination with Canada.

2. Also assignable to Canadian stations within the frequency coordination zone following successful coordination with the United States.

3. Changes to existing assignments and new assignments within the frequency coordination zone of either country are subject to prior coordination with the other Administration.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 68956, Dec. 14, 1998; 73 FR 4480, Jan. 25, 2008]

§ 80.59 Compulsory ship inspections.

(a) Inspection of ships subject to the Communications Act or the Safety Convention.

(1) The FCC will not normally conduct the required inspections of ships subject to the inspection requirements of the Communications Act or the Safety Convention.

NOTE: Nothing in this section prohibits Commission inspectors from inspecting ships. The mandatory inspection of U.S. vessels must be conducted by an FCC-licensed technician holding an FCC General Radiotelephone Operator License, GMDSS Radio Maintainer's License, Second Class Radiotelegraph Operator's Certificate, First Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License in accordance with the following table:

Category of vessel	Minimum class of FCC license required by private sector technician to conduct inspection—only one license required			
	General radiotelephone operator license	GMDSS radio maintainer's license	Radiotelegraph operator license (formerly second class radiotelegraph operator's certificate)	First class radiotelegraph operator's certificate.
Radiotelephone equipped vessels subject to 47 CFR part 80, subpart R or S.	√	√	√	√
GMDSS equipped vessels subject to 47 CFR part 80, subpart W.	.....	√	.....	.....

(2) A certification that the ship has passed an inspection must be entered into the ship's log by the inspecting technician. The technician conducting the inspection and providing the certification must not be the vessel's owner, operator, master, or employee or their affiliates. Additionally, the vessel owner, operator, or ship's master must certify in the station log that the inspection was satisfactory. There are no FCC prior notice requirements for any inspection pursuant to paragraph (a)(1) of this section. An inspection of the bridge-to-bridge radio stations on board vessels subject to the Vessel

Bridge-to-Bridge Radiotelephone Act must be conducted by the same FCC-licensed technician.

(3) Additionally, for passenger vessels operated on an international voyage the inspecting technician must send a completed FCC Form 806 to the Officer in Charge, Marine Safety Office, United States Coast Guard in the Marine Inspection Zone in which the ship is inspected.

(4) In the event that a ship fails to pass an inspection the inspecting technician must make a log entry detailing the reason that the ship did not pass the inspection. Additionally, the technician must notify the vessel owner, operator, or ship's master that the vessel has failed the inspection.

(5) Because such inspections are intended to ensure the availability of communications capability during a distress the Commission will vigorously investigate reports of fraudulent inspections, or violations of the Communications Act or the Commission's Rules related to ship inspections. FCC-licensed technicians, ship owners or operators should report such violations to the Commission through its National Call Center at 1–888–CALL FCC (1–888–225–5322).

(b) Inspection and certification of a ship subject to the Great Lakes Agreement. The FCC will not inspect Great Lakes Agreement vessels. An inspection and certification of a ship subject to the Great Lakes Agreement must be made by a technician holding one of the following: an FCC General Radiotelephone Operator License, a GMDSS Radio Maintainer's License, a Second Class Radiotelegraph Operator's Certificate, a First Class Radiotelegraph Operator's Certificate, or a Radiotelegraph Operator License. The certification required by § 80.953 must be entered into the ship's log. The technician conducting the inspection and providing the certification must not be the vessel's owner, operator, master, or an employee of any of them. Additionally, the vessel owner, operator, or ship's master must certify that the inspection was satisfactory. There are no FCC prior notice requirements for any inspection pursuant to § 80.59(b).

(c) *Application for exemption*. (1) Applications for exemption from the radio provisions of part II or III of title III of the Communications Act, the Safety Convention, or the Great Lakes Radio Agreement, or for modification or renewal of an exemption previously granted must be filed as a waiver request using FCC Form 605. Waiver requests must include the following information:

(i) Name of ship;

(ii) Call sign of ship;

(iii) Official number of ship;

(iv) Gross tonnage of ship;

(v) The radio station requirements from which the exemption is requested:

(A) Radiotelephone (VHF/MF);

(B) Radiotelegraph; and/or

(C) Radio direction finding apparatus;

(vi) File number of any previously granted exemption;

(vii) Detailed description of the voyages for which the exemption is requested, including:

(A) Maximum distance from nearest land in nautical miles;

(B) Maximum distance between two consecutive ports in nautical miles; and

(C) Names of all ports of call and an indication of whether travel will include a foreign port;

(viii) Reasons for the exemption:

(A) Size of vessel;

(B) Variety of radio equipment on board;

(C) Limited routes; and/or

(D) Conditions of voyages;

(ix) A copy of the U.S. Coast Guard Certificate of Inspection an indication of whether the vessel is certified as a Passenger or Cargo ship (for passenger ships, list the number of passengers the ship is licensed to carry); and

(x) Type and quantity of radio equipment on board, including:

(A) VHF Radio Installation (indicate if GMDSS approved);

(B) Single Side-Band (SSB) (indicate the band of operation, MF or HF and indicate if GMDSS approved);

(C) Category 1, 406 MHz EPIRB (GMDSS approved);

(D) NAVTEX Receiver (GMDSS approved);

(E) Survival Craft VHF (GMDSS approved);

(F) 9 GHz Radar Transponder (GMDSS approved);

(G) Ship Earth Station;

(H) 2182 Radiotelephone Auto Alarm

(I) Reserve Power Supply (capability); and

(J) Any other equipment.

(2) Feeable applications for exemption must be filed with U.S. Bank, P.O. Box 979097, St. Louis, MO 63197–9000 at the address set forth in § 1.1102. Emergency requests must be filed with the Federal Communications Commission, Office of the Secretary, 445 Twelfth Street, SW., TW-B204, Washington, DC 20554.

NOTE: With emergency requests, do not send the fee, you will be billed.

(d) *Waiver of annual inspection.* (1) The Commission may, upon a finding that the public interest would be served, grant a waiver of the annual inspection required by Section 362(b) of the Communications Act, 47 U.S.C. 360(b), for a period of not more than 90 days for the sole purpose of enabling a United States vessel to complete its voyage and proceed to a port in the United States where an inspection can be held. An informal application must be submitted by the ship's owner, operator or authorized agent. The application must be submitted to the Commission's District Director or Resident Agent in charge of the FCC office nearest the port of arrival at least three days before the ship's arrival. The application must include:

(i) The ship's name and radio call sign;

(ii) The name of the first United States port of arrival directly from a foreign port;

(iii) The date of arrival;

(iv) The date and port at which annual inspection will be formally requested to be conducted;

(v) The reason why an FCC-licensed technician could not perform the inspection; and

(vi) A statement that the ship's compulsory radio equipment is operable.

(2) Vessels that are navigated on voyages outside of the United States for more than 12 months in succession are exempted from annual inspection required by section 362(b) of the Communications Act, provided that the vessels comply with all applicable requirements of the Safety Convention, including the annual inspection required by Regulation 9, Chapter I, and the vessel is inspected by an FCC-licensed technician in accordance with this section within 30 days of arriving in the United States.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 64715, Dec. 12, 1991; 60 FR 50122, Sept. 28, 1995; 61 FR 8478, Mar. 5, 1996; 61 FR 25805, May 23, 1996; 63 FR 29658, June 1, 1998; 63 FR 68956, Dec. 14, 1998; 64 FR 53241, Oct. 1, 1999; 68 FR 46960, Aug. 7, 2003; 69 FR 64671, Nov. 8, 2004; 73 FR 9031, Feb. 19, 2008; 78 FR 23154, Apr. 18, 2013]

§ 80.60 Partitioned licenses and disaggregated spectrum.

(a) Except as specified in § 20.15(c) of this chapter with respect to commercial mobile radio service providers, charges must not be made for service of:

(1) VHF Public Coast area licensees, *see* § 80.371(c)(1)(ii), may partition their geographic service area or disaggregate their spectrum pursuant to the procedures set forth in this section.

(2) AMTS geographic area licensees, *see* § 80.385(a)(3), may partition their geographic service area or disaggregate their spectrum pursuant to the procedures set forth in this section. Site-based AMTS public coast station licensees may partition their license or disaggregate their spectrum pursuant to the procedures set forth in this section, provided that the partitionee or disaggregatee's predicted 38 dBu signal level contour does not extend beyond the partitioner or disaggregator's predicted 38 dBu signal level contour. The predicted 38 dBu signal level contours shall be calculated using the F(50, 50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction for antenna height differential.

(3) Nationwide or multi-region LF, MF, and HF public coast station licensees, *see* §§ 80.357(b)(1), 80.361(a), 80.363(a)(2), 80.371(b), and 80.374, may partition their spectrum pursuant to the procedures set forth in this section, except that frequencies or frequency pairs licensed to more than one licensee as of March 13, 2002 may be partitioned only by the earliest licensee, and only on the condition that the partitionee shall operate on a secondary, non-interference basis to stations licensed as of March 13, 2002 other

than the earliest licensee. Coordination with government users is required for partitioning of spectrum the licensing of which is subject to coordination with government users.

(b) *Technical standards*—(1) *Partitioning*. In the case of partitioning, all requests for authorization for partial assignment of a license must include, as an attachment, a description of the partitioned service area. The partitioned service area shall be defined by coordinate points at every 3 degrees along the partitioned service area unless an FCC-recognized service area is utilized (e.g., Metropolitan Service Area, Rural Service Area, or Economic Area) or county lines are used. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude, and must be based upon the 1983 North American Datum (NAD83). In a case where an FCC-recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(2) *Disaggregation*. VHF (156–162 MHz) spectrum may only be disaggregated according to frequency pairs. AMTS spectrum may be disaggregated in any amount.

(3) *Combined partitioning and disaggregation*. The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(c) *License term*. The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's term as provided for in § 80.25 of this part.

(d) *Construction Requirements*—(1) *Partitioning*. Partial assignors and assignees for license partitioning have two options to meet construction requirements. Under the first option, the partitionor and partitionee would each certify that they will independently satisfy the substantial service requirement for their respective partitioned areas. If either licensee failed to meet its substantial service showing requirement, only the non-performing licensee's renewal application would be subject to dismissal. Under the second option, the partitioner certifies that it has met or will meet the substantial service requirement for the entire market. If the partitioner fails to meet the substantial service standard, however, only its renewal application would be subject to forfeiture at renewal.

(2) *Disaggregation*. Partial assignors and assignees for license disaggregation have two options to meet construction requirements. Under the first option, the disaggregator and disaggregatee would certify that they each will share responsibility for meeting the substantial service requirement for the geographic service area. If parties choose this option and either party fails to do so, both licenses would be subject to forfeiture at renewal. The second option would allow the parties to agree that either the disaggregator or the disaggregatee would be responsible for meeting the substantial service requirement for the geographic service area. If parties choose this option, and the party responsible for meeting the construction requirement fails to do so, only the license of the nonperforming party would be subject to forfeiture at renewal.

(3) *Site-based AMTS, and nationwide or multi-region LF, MF, and HF public coast*. Parties seeking to acquire a partitioned license or disaggregated spectrum from a site-based AMTS, or nationwide or multi-region LF, MF, and HF public coast licensee will be required to construct and commence ''service to subscribers'' in all facilities acquired through such transactions within the original construction deadline for each facility as set forth in § 80.49. Failure to meet the individual construction deadline will result in the automatic termination of the facility's authorization.

[63 FR 40063, July 27, 1998, as amended at 67 FR 48563, July 25, 2002; 69 FR 64671, Nov. 8, 2004]

Subpart C—Operating Requirements and Procedures

STATION REQUIREMENTS—GENERAL

§ 80.61 Commission inspection of stations.

All stations and required station records must be made available for inspection by authorized representatives of the Commission.

§ 80.63 Maintenance of transmitter power.

(a) The power of each radio transmitter must not be more than that necessary to carry on the service for which the station is licensed.

(b) Except for transmitters using single sideband and independent sideband emissions, each radio transmitter rated by the manufacturer for carrier power in excess of 100 watts must contain the instruments necessary to determine the transmitter power during its operation.

STATION REQUIREMENTS—LAND STATIONS

§ 80.67 General facilities requirements for coast stations.

(a) All coast stations licensed to transmit in the band 156–162 MHz must be able to transmit and receive on 156.800 MHz and at least one working frequency in the band.

(b) All coast stations that operate telephony on frequencies in the 1605–3500 kHz band must be able to transmit and receive using J3E emission on the frequency 2182 kHz and at least one working frequency in the band.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46960, Aug. 7, 2003]

§ 80.68 Facilities requirements for public coast stations using telegraphy.

Public coast station using telegraphy must be provided with the following facilities.

(a) Stations having a frequency assignment below 150 kHz must:

(1) Transmit A1A emission on at least one working frequency within the band 100–150 kHz;

(2) Receive A1A emission on all radio channels authorized for transmission by mobile stations operating in the maritime mobile service for telegraphy within the band 100–150 kHz.

(b) Stations having a frequency assignment within the 405–525 kHz band must transmit and receive on 500 kHz and at least one working frequency in the band.

(c) Stations having frequency assignments above 4000 kHz must be equipped to receive on each of their assigned frequencies and all ship station radiotelegraphy frequencies in the same subband as the assigned frequency of the coast station. See subpart H of this part for the list of frequencies.

§ 80.69 Facilities requirement for public coast stations using telephony.

Public coast stations using telephony must be provided with the following facilities.

(a) When the station is authorized to use frequencies in the 1605–3500 kHz band, equipment meeting the requirements of § 80.67(b) must be installed at each transmitting location.

(b) The transmitter power on the frequency 2182 kHz must not exceed 50 watts carrier power for normal operation. During distress, urgency and safety traffic, operation at maximum power is permitted.

§ 80.70 Special conditions relative to coast station VHF facilities.

(a) Coast stations which transmit on the same radio channel above 150 MHz must minimize interference by reducing radiated power, by decreasing antenna height or by installing directional antennas. Coast stations at locations separated by less than 241 kilometers (150 miles) which transmit on the same radio channel above 150 MHz must also consider a time-sharing arrangement. The Commission may order station changes if agreement cannot be reached between the involved licensees.

(b) Coast stations which transmit on a radio channel above 150 MHz and are located within interference range of any station within Canada or Mexico must minimize interference to the involved foreign station(s), and must notify the Commission of any station changes.

(c) A VHF (156–162 MHz) public coast licensee initially authorized on any of the channels listed in the table in

§ 80.371(c)(1), or an AMTS licensee initially authorized on any of the channel blocks listed in the table in § 80.385(a)(2), may transfer or assign its channel(s), or channel block(s), to another entity. If the proposed transferee or assignee is the geographic area licensee for the geographic area to which the frequency block is allocated, such transfer or assignment will be deemed to be in the public interest. However, such presumption will be rebuttable.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 40063, July 27, 1998; 67 FR 48564, July 25, 2002]

§ 80.71 Operating controls for stations on land.

Each coast station, Alaska-public fixed station and Alaska-private fixed station must provide operating controls in accordance with the following:

(a) Each station using telegraphy or telephony must be capable of changeover from transmission to reception and vice versa within two seconds excluding a change in operating radio channel.

(b) During it hours of service, each station must be capable of:

(1) Commencing operation within one minute after the need to do so occurs;

(2) Discontinuing all emission within five seconds after emission is no longer desired. The emission of an unattended station in an automated multistation system at which restoration to standby is automatic on conclusion of a call must be discontinued within three seconds of the disconnect signal or, if a disconnect signal is not received, within twenty seconds after reception of the final carrier transmission from a ship station.

(c) Each station using a multichannel installation for telegraphy must be capable of changing from one telegraphy channel to any other telegraphy channel within the same sub-band below 525 kHz within five seconds. This requirement need not be met by equipment intended for use only in emergencies and not used for normal communication.

(d) Every coast station using a multichannel installation for radiotelephony must be capable of changing from one telephony channel to another telephony channel within:

(1) Five seconds within the frequency band 1605–3500 kHz; or

(2) Three seconds within the band 156–162 MHz. This requirement also applies to marine utility stations.

§ 80.72 Antenna requirements for coast stations.

All emissions of a coast station a marine-utility station operated on shore using telephony within the frequency band 30–200 MHz must be vertically polarized.

§ 80.74 Public coast station facilities for a telephony busy signal.

A ''busy'' signal, when used by a public coast station in accordance with the provisions of § 80.111(d), must consist of the transmission of a single audio frequency regularly interrupted, as follows:

(a) *Audio frequency*. Not less than 100 nor more than 1100 Hertz, provided the frequency used for this purpose will not cause auto alarms or selective-ringing devices to be operated.

(b) *Rate of interruption*. 60 times per minute ±10%.

(c) *Duration of each interruption*. 0.5 second ±10%.

§ 80.76 Requirements for land station control points.

Each coast or fixed station subject to this part must have the following facilities:

(a) Except for marine utility stations, a visual indication of antenna current; or a pilot lamp, meter or equivalent device which provides continuous visual indication whenever the transmitter control circuits have been actuated.

(b) Capability to aurally monitor all transmissions originating at dispatch points and to disconnect the dispatch points from the transmitter or to terminate the operation of the transmitter.

(c) Facilities which will permit the responsible operator to turn the carrier of the radio transmitter on and off at will.

STATION REQUIREMENTS—SHIP STATIONS

§ 80.79 Inspection of ship station by a foreign Government.

The Governments or appropriate administrations of countries which a ship visits may require the license of the ship station or ship earth station to be produced for examination. When the license cannot be produced without delay or when irregularities are observed, Governments or administrations may inspect the radio installations to satisfy themselves that the installation conforms to the conditions imposed by the Radio Regulations.

§ 80.80 Operating controls for ship stations.

(a) Each control point must be capable of:

(1) Starting and discontinuing operation of the station;

(2) Changing frequencies within the same sub-band;

(3) Changing from transmission to reception and vice versa.

(4) In the case of stations operating in the 156–162 MHz bands, reducing power output to one watt or less in accordance with § 80.215(e).[1]

(b) Each ship station using telegraphy must be capable of changing from telegraph transmission to telegraph reception and vice versa without manual switching.

(c) Each ship station using telephony must be capable of changing from transmission to reception and vice versa within two seconds excluding a change in operating radio channel.

(d) During its hours of service, each ship station must be capable of:

(1) Commencing operation within one minute;

(2) Discontinuing all emission within five seconds after emission is no longer desired.

(e) Each ship station using a multichannel installation for telegraphy (except equipment intended for use only in emergencies on frequencies below 515 kHz) must be capable of changing from one radio channel to another within:

(1) Five seconds if the channels are within the same sub-band; or

(2) Fifteen seconds if the channels are not within the same sub-band.

(f) Each ship station and marine-utility station using a multi-channel installation for telephony must be capable of changing from one radio channel to another within:

(1) Five seconds within the band 1605–3500 kHz; or

(2) Three seconds within the band 156–162 MHz.

(g)(1) Any telegraphy transmitter constructed since January 1, 1952, that operates in the band 405–525 kHz with an output power in excess of 250 watts must be capable of reducing the output power to 150 watts or less.

(2) The requirement of paragraph (g)(1) of this section does not apply when there is available in the same station a transmitter capable of operation on the international calling frequency 500 kHz and at least one working frequency within the band 405–525 kHz, capable of being energized by a source of power other than an emergency power source and not capable of an output in excess of 100 watts when operated on such frequencies.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987]

§ 80.81 Antenna requirements for ship stations.

All telephony emissions of a ship station or a marine utility station on board ship within the frequency band 30–200 MHz must be vertically polarized.

§ 80.83 Protection from potentially hazardous RF radiation.

Any license or renewal application for a ship earth station that will cause exposure to radiofrequency (RF) radiation in excess of the RF exposure guidelines specified in § 1.1307(b) of the

[1] Ship station transmitters, except hand-held portable transmitters, manufactured after January 21, 1987 must automatically reduce the carrier power to one watt or less when turned to the frequency 156.375 MHz or 156.650 MHz. All ship station tramsmitters, except hand-held portable transmitters, used after January 21, 1997, must automatically reduce power as described above. A manual override device must be provided which when held by the operator will permit full carrier power operation on channels 13 and 67. Hand-held portable transmitters must be capable of reducing power to one watt, but need not do so automatically.

Commission's Rules must comply with the environmental processing rules set forth in §§ 1.1301–1.1319 of this chapter.

[53 FR 28225, July 27, 1988]

OPERATING PROCEDURES—GENERAL

§ 80.86 International regulations applicable.

In addition to being regulated by these rules, the use and operation of stations subject to this part are governed by the Radio Regulations and the radio provisions of all other international agreements in force to which the United States is a party.

§ 80.87 Cooperative use of frequency assignments.

Each radio channel is available for use on a shared basis only and is not available for the exclusive use of any one station or station licensee. Station licensees must cooperate in the use of their respective frequency assignments in order to minimize interference and obtain the most effective use of the authorized radio channels.

§ 80.88 Secrecy of communication.

The station licensee, the master of the ship, the responsible radio operators and any person who may have knowledge of the radio communications transmitted or received by a fixed, land, or mobile station subject to this part, or of any radiocommunication service of such station, must observe the secrecy requirements of the Communications Act and the Radio Regulations. See sections 501, 502, and 705 of the Communications Act and Article 23 of the Radio Regulations.

§ 80.89 Unauthorized transmissions.

Stations must not:

(a) Engage in superfluous radiocommunication.

(b) Use telephony on 243 MHz.

(c) Use selective calling on 2182 kHz or 156.800 MHz.

(d) When using telephony, transmit signals or communications not addressed to a particular station or stations. This provision does not apply to the transmission of distress, alarm, urgency, or safety signals or messages, or to test transmissions.

(e) Transmit while on board vessels located on land unless authorized under a public coast station license. Vessels in the following situations are not considered to be on land for the purposes of this paragraph:

(1) Vessels which are aground due to a distress situation;

(2) Vessels in drydock undergoing repairs; and

(3) State or local government vessels which are involved in search and rescue operations including related training exercises.

(f) Transmit on frequencies or frequency bands not authorized on the current station license.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987; 62 FR 40304, July 28, 1997; 68 FR 46960, Aug. 7, 2003]

§ 80.90 Suspension of transmission.

Transmission must be suspended immediately upon detection of a transmitter malfunction and must remain suspended until the malfunction is corrected, except for transmission concerning the immediate safety of life or property, in which case transmission must be suspended as soon as the emergency is terminated.

§ 80.91 Order of priority of communications.

(a) All stations in the maritime mobile service and the maritime mobile-satellite service shall be capable of offering four levels of priority in the following order:

(1) Distress calls, distress messages, and distress traffic.

(2) Urgency communications.

(3) Safety communications.

(4) Other communications.

(b) In a fully automated system, where it is impracticable to offer all four levels of priority, category 1 shall receive priority until such time as intergovernmental agreements remove exemptions granted for such systems from offering the complete order of priority.

[68 FR 46960, Aug. 7, 2003]

§ 80.92 Prevention of interference.

(a) The station operator must determine that the frequency is not in use by monitoring the frequency before

transmitting, except for transmission of signals of distress.

(b) When a radiocommunication causes interference to a communication which is already in progress, the interfering station must cease transmitting at the request of either party to the existing communication. As between nondistress traffic seeking to commence use of a frequency, the priority is established under § 80.91.

(c) Except in cases of distress, communications between ship stations or between ship and aircraft stations must not interfere with public coast stations. The ship or aircraft stations which cause interference must stop transmitting or change frequency upon the first request of the affected coast station.

§ 80.93 Hours of service.

(a) *All stations.* All stations whose hours of service are not continuous must not suspend operation before having concluded all communication required in connection with a distress call or distress traffic.

(b) *Public coast stations.* (1) Each public coast station whose hours of service are not continuous must not suspend operation before having concluded all communication involving messages or calls originating in or destined to mobile stations within range and mobile stations which have indicated their presence.

(2) Unless otherwise authorized by the Commission upon adequate showing of need, each public coast station authorized to operate on frequencies in the 3000–23,000 kHz band must maintain continuous hours of service.

(c) *Compulsory ship stations.* (1) Compulsory ship stations whose service is not continuous may not suspend operation before concluding all traffic originating in or destined for public coast stations situated within their range and mobile stations which have indicated their presence.

(2) For GMDSS ships, radios shall be turned on and set to proper watch channels while ships are underway. If a ship has duplicate GMDSS installations for DSC or INMARSAT, only one of each must be turned on and keeping watch.

(d) *Ships voluntarily fitting GMDSS subsystems.* For ships voluntarily fitting GMDSS subsystems, radios shall be turned on and set to proper watch channels while ships are underway. If ship has duplicate GMDSS installations for DSC or INMARSAT, only one of each must be turned on and keeping watch.

(e) *Other than public coast or compulsory ship stations.* The hours of service of stations other than those described in paragraphs (b), (c), and (d) of this section are determined by the station licensee.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46960, Aug. 7, 2003]

§ 80.94 Control by coast or Government station.

When communicating with a coast station or any Government station in the maritime mobile service, ship stations must comply with the instruction given by the coast station or Government station relative to the order and time of transmission, the choice of frequency, the suspension of communication and the permissible type of message traffic that may be transmitted. This provision does not apply in the event of distress.

§ 80.95 Message charges.

(a) Except as specified in § 20.15(c) of this chapter with respect to commercial mobile radio service providers, charges must not be made for service of:

(1) Any public coast station unless tariffs for the service are on file with the Commission;

(2) Any station other than a public coast station or an Alaska—public fixed station, except cooperatively shared stations covered by § 80.503;

(3) Distress calls and related traffic; and

(4) Navigation hazard warnings preceded by the SAFETY signal.

(b) The licensee of each ship station is responsible for the payment of all charges accruing to any other station(s) or facilities for the handling or forwarding of messages or communications transmitted by that station.

(c) In order to be included in the ITU List of Coast Stations public coast stations must recognize international Accounting Authority Identification Codes (AAIC) for purposes of billing and accounts settlement in accordance with Article 66 of the Radio Regulations. Stations which elect not to recognize international AAIC's will be removed from the ITU List of Coast Stations.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987; 69 FR 64671, Nov. 8, 2004]

§ 80.96 Maintenance tests.

Stations are authorized to engage in test transmissions necessary for maintenance of the station. Test transmissions must conform to appropriate test operating procedures.

§ 80.97 Radiotelegraph operating procedures.

This section applies to ships and coast stations authorized to transmit in the band 405–525 kHz.

(a) Except for the transmission of distress or urgency signals, all transmissions must cease within the band 485–515 kHz during each 500 kHz silence period.

(b) Stations transmitting telegraphy must use the service abbreviations (''Q'' code) listed in Appendix 14 to the Radio Regulations.

(c) The call consists of:

(1) The call sign of the station called, not more than twice; the word ''DE'' and the call sign of the calling station, not more than twice; if useful, the frequency on which the called station should reply; and the letter ''K''.

(2) If the call is transmitted twice at an interval of not less than one minute, it must not be repeated until after an interval of three minutes.

(d) The reply to calls consists of: The call sign of the calling station, not more than twice; the word ''DE''; and the call sign of the station called, once only.

§ 80.98 Radiotelegraph testing procedures.

Stations authorized to use telegraphy may conduct tests on any assigned frequency. Emissions must not cause harmful interference. When radiation is necessary the radiotelegraph testing procedure described in this paragraph must be followed:

(a) The operator must not interfere with transmissions in progress.

(b) The operator must transmit ''IE'' (two dots, space, one dot) on the test frequency as a warning that test emissions are about to be made.

(c) If any station transmits ''AS'' (wait), testing must be suspended. When transmission of ''IE'' is resumed and no response is heard, the test may proceed.

(d) Test signals composed of a series of ''VVV'' having a duration of not more than ten seconds, followed by the call sign of the testing station will be transmitted. The call sign must be sent clearly at a speed of approximately 10 words per minute. This test transmission must not be repeated until a period of at least one minute has elapsed.

[69 FR 64671, Nov. 8, 2004]

§ 80.99 Radiotelegraph station identification.

This section applies to coast, ship and survival craft stations authorized to transmit in the band 405–525 kHz.

(a) The station transmitting radiotelegraph emissions must be identified by its call sign. The call sign must be transmitted with the telegraphy emission normally used by the station. The call sign must be transmitted at 20 minute intervals when transmission is sustained for more than 20 minutes. When a ship station is exchanging public correspondence communications, the identification may be deferred until completion of each communication with any other station.

(b) The requirements of this section do not apply to survival craft stations when transmitting distress signals automatically or when operating on 121.500 MHz for radiobeacon purposes.

(c) Emergency position indicating radiobeacon stations do not require identification.

§ 80.100 Morse code requirement.

The code employed for telegraphy must be the Morse code specified in the Telegraph Regulations annexed to the International Telecommunication Convention. Pertinent extracts from the

Telegraph Regulations are contained in the ''Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services'' published by the International Telecommunication Union.

§ 80.101 Radiotelephone testing procedures.

This section is applicable to all stations using telephony except where otherwise specified.

(a) Station licensees must not cause harmful interference. When radiation is necessary or unavoidable, the testing procedure described below must be followed:

(1) The operator must not interfere with transmissions in progress.

(2) The testing station's call sign, followed by the word ''test'', must be announced on the radio-channel being used for the test.

(3) If any station responds ''wait'', the test must be suspended for a minimum of 30 seconds, then repeat the call sign followed by the word ''test'' and listen again for a response. To continue the test, the operator must use counts or phrases which do not conflict with normal operating signals, and must end with the station's call sign. Test signals must not exceed ten seconds, and must not be repeated until at least one minute has elapsed. On the frequency 2182 kHz or 156.800 MHz, the time between tests must be a minimum of five minutes.

(b) Testing of transmitters must be confined to single frequency channels on working frequencies. However, 2182 kHz and 156.800 MHz may be used to contact ship or coast stations as appropriate when signal reports are necessary. Short tests on 4125 kHz are permitted by vessels equipped with MF/HF radios to evaluate the compatibility of the equipment for distress and safety purposes. U.S. Coast Guard stations may be contacted on 2182 kHz or 156.800 MHz for test purposes only when tests are being conducted by Commission employees, when FCC-licensed technicians are conducting inspections on behalf of the Commission, when qualified technicians are installing or repairing radiotelephone equipment, or when qualified ship's personnel conduct an operational check requested by the U.S. Coast Guard. In these cases the test must be identified as ''FCC'' or ''technical.''

(c) Survival craft transmitter tests must not be made within actuating range of automatic alarm receivers.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 29659, June 1, 1998; 68 FR 46961, Aug. 7, 2003]

§ 80.102 Radiotelephone station identification.

This section applies to all stations using telephony which are subject to this part.

(a) Except as provided in paragraphs (d) and (e) of this section, stations must give the call sign in English. Identification must be made:

(1) At the beginning and end of each communication with any other station.

(2) At 15 minute intervals when transmission is sustained for more than 15 minutes. When public correspondence is being exchanged with a ship or aircraft station, the identification may be deferred until the completion of the communications.

(b) Private coast stations located at drawbridges and transmitting on the navigation frequency 156.650 MHz may identify by use of the name of the bridge in lieu of the call sign.

(c) Ship stations transmitting on any authorized VHF bridge-to-bridge channel may be identified by the name of the ship in lieu of the call sign.

(d) Ship stations operating in a vessel traffic service system or on a waterway under the control of a U.S. Government agency or a foreign authoriy, when communicating with such an agency or authority may be identified by the name of the ship in lieu of the call sign, or as directed by the agency or foreign authority.

(e) Voice traffic in the INMARSAT system is closed to other parties except the two stations involved and the identification is done automatically with the establishment of the call. Therefore, it is not necessary for these stations to identify themselves periodically during the communication. For terrestrial systems using DSC to establish radiotelephone communications, the identification is made at the beginning of the call. In these cases, both parties must identify themselves by ship name, call sign or MMSI at least

once every 15 minutes during radiotelephone communications.

(f) VHF public coast stations licensed to serve a predetermined geographic service area are not required to provide station identification under this section. A site-based VHF public coast station may identify by means of the approximate geographic location of the station or the area it serves when it is the only VHF public coast station serving the location or there will be no conflict with the identification of any other station.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987; 68 FR 46961, Aug. 7, 2003; 69 FR 64671, Nov. 8, 2004]

§ 80.103 Digital selective calling (DSC) operating procedures.

(a) Operating procedures for the use of DSC equipment in the maritime mobile service are as contained in ITU–R M.541–9 (incorporated by reference, see § 80.7), and subpart W of this part.

(b) When using DSC techniques, coast stations and ship stations must use maritime mobile service identities (MMSI) assigned by the Commission or its designees.

(c) DSC acknowledgment of DSC distress and safety calls must be made by designated coast stations and such acknowledgment must be in accordance with procedures contained in ITU–R M.541–9 (incorporated by reference, see § 80.7). Nondesignated public and private coast stations must follow the guidance provided for ship stations in ITU–R M.541–9 (incorporated by reference, see § 80.7), with respect to DSC ''Acknowledgment of distress calls'' and ''Distress relays.'' (See subpart W of this part.)

(d) Group calls to vessels under the common control of a single entity are authorized. A group call identity may be created from an MMSI ending in a zero, assigned to this single entity, by deleting the trailing zero and adding a leading zero to the identity.

[68 FR 46961, Aug. 7, 2003, as amended at 73 FR 4480, Jan. 25, 2008; 76 FR 67610, Nov. 2, 2011]

§ 80.104 Identification of radar transmissions not authorized.

This section applies to all maritime radar transmitters except radar beacon stations.

(a) Radar transmitters must not transmit station identification.

(b) [Reserved]

OPERATING PROCEDURES—LAND STATIONS

§ 80.105 General obligations of coast stations.

Each coast station or marine-utility station must acknowledge and receive all calls directed to it by ship or aircraft stations. Such stations are permitted to transmit safety communication to any ship or aircraft station. VHF (156–162 MHz) and AMTS (216–220 MHz) public coast stations may provide fixed or hybrid services on a co-primary basis with mobile operations.

[65 FR 77824, Dec. 13, 2000]

§ 80.106 Intercommunication in the mobile service.

(a) Each public coast station must exchange radio communications with any ship or aircraft station at sea; and each station on shipboard or aircraft at sea must exchange radio communications with any other station on shipboard or aircraft at sea or with any public coast station.

(b) Each public coast station must acknowledge and receive all communications from mobile stations directed to it, transmit all communications delivered to it which are directed to mobile stations within range in accordance with their tariffs. Discrimination in service is prohibited.

§ 80.107 Service of private coast stations and marine-utility stations.

A private coast station or a marine-utility station is authorized to transmit messages necessary for the private business and operational needs of ships and the safety of aircraft.

§ 80.108 Transmission of traffic lists by coast stations.

(a) Each coast station is authorized to transmit lists of call signs in alphabetical order of all mobile stations for which they have traffic on hand. These

traffic lists will be transmitted on the station's normal working frequencies at intervals of:

(1) In the case of telegraphy, at least two hours and not more than four hours during the working hours of the coast station.

(2) In the case of radiotelephony, at least one hour and not more than four hours during the working hours of the coast station.

(b) The announcement must be as brief as possible and must not be repeated more than twice. Coast stations may announce on a calling frequency that they are about to transmit call lists on a specific working frequency.

§ 80.109 Transmission to a plurality of mobile stations by a public coast station.

Group calls to vessels under the common control of a single entity and information for the general benefit of mariners including storm warnings, ordinary weather, hydrographic information and press materials may be transmitted by a public coast station simultaneously to a plurality of mobile stations.

§ 80.110 Inspection and maintenance of antenna structure markings and associated control equipment.

The owner of each antenna structure required to be painted and/or illuminated under the provisions of Section 303(q) of the Communications Act of 1934, as amended, shall operate and maintain the antenna structure painting and lighting in accordance with part 17 of this chapter. In the event of default by the owner, each licensee or permittee shall be individually responsible for conforming to the requirements pertaining to antenna structure painting and lighting.

[61 FR 4368, Feb. 6, 1996]

§ 80.111 Radiotelephone operating procedures for coast stations.

This section applies to all coast stations using telephony which are subject to this part.

(a) *Limitations on calling.* (1) Except when transmitting a general call to all stations for announcing or preceding the transmission of distress, urgency, or safety messages, a coast station must call the particular station(s) with which it intends to communicate.

(2) Coast stations must call ship stations by voice unless it is known that the particular ship station may be contacted by other means such as automatic actuation of a selective ringing or calling device.

(3) Coast stations may be authorized emission for selective calling on each working frequency.

(4) Calling a particular station must not continue for more than one minute in each instance. If the called station does not reply, that station must not again be called for two minutes. When a called station does not reply to a call sent three times at intervals of two minutes, the calling must cease for fifteen minutes. However, if harmful interference will not be caused to other communications in progress, the call may be repeated after three minutes.

(5) A coast station must not attempt to communicate with a ship station that has specifically called another coast station until it becomes evident that the called station does not answer, or that communication between the ship station and the called station cannot be carried on because of unsatisfactory operating conditions.

(6) Calls to establish communication must be initiated on an available common working frequency when such a frequency exists and it is known that the called ship maintains a simultaneous watch on the common working frequency and the appropriate calling frequency(ies).

(b) *Time limitation on calling frequency.* Transmissions by coast stations on 2182 kHz or 156.800 MHz must be minimized and any one exchange of communications must not exceed one minute in duration.

(c) *Change to working frequency.* After establishing communications with another station by call and reply on 2182 kHz or 156.800 MHz coast stations must change to an authorized working channel for the transmission of messages.

(d) *Use of busy signal.* A coast station, when communicating with a ship station which transmits to the coast station on a radio channel which is a different channel from that used by the coast station for transmission, may transmit a ''busy'' signal whenever

transmission from the ship station is being received. The characteristics of the ''busy'' signal are contained in § 80.74.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987]

OPERATING PROCEDURES—SHIP STATIONS

§ 80.114 Authority of the master.

(a) The service of each ship station must at all times be under the ultimate control of the master, who must require that each operator or such station comply with the Radio Regulations in force and that the ship station is used in accordance with those regulations.

(b) These rules are waived when the vessel is under the control of the U.S. Government.

§ 80.115 Operational conditions for use of associated ship units.

(a) Associated ship units may be operated under a ship station authorization. Use of an associated ship unit is restricted as follows;

(1) It must only be operated on the safety and calling frequency 156.800 MHz or on commercial or noncommercial VHF intership frequencies appropriate to the class of ship station with which it is associated.

(2) Except for safety purposes, it must only be used to communicate with the ship station with which it is associated or with associated ship units of the same ship station. Such associated ship units may not be used from shore.

(3) It must be equipped to transmit on the frequency 156.800 MHz and at least one appropriate intership frequency.

(4) Calling must occur on the frequency 156.800 MHz unless calling and working on an intership frequency has been prearranged.

(5) Power is limited to one watt.

(6) The station must be identified by the call sign of the ship station with which it is associated and an appropriate unit designator.

(b) State or local government vehicles used to tow vessels involved in search and rescue operations are authorized to operate on maritime mobile frequencies as associated ship units. Such operations must be in accordance with paragraph (a) of this section, except that the associated ship unit: May be operated from shore; may use Distress, Safety and Calling, Intership Safety, Liaison, U.S. Coast Guard, or Maritime Control VHF intership frequencies; and may have a transmitter power of 25 watts.

§ 80.116 Radiotelephone operating procedures for ship stations.

(a) *Calling coast stations.* (1) Use by ship stations of the frequency 2182 kHz for calling coast stations and for replying to calls from coast stations is authorized. However, such calls and replies should be on the appropriate ship-shore working frequency.

(2) Use by ship stations and marine utility stations of the frequency 156.800 MHz for calling coast stations and marine utility stations on shore, and for replying to calls from such stations, is authorized. However, such calls and replies should be made on the appropriate ship-shore working frequency.

(b) *Calling ship stations.* (1) Except when other operating procedure is used to expedite safety communication, ship stations, before transmitting on the intership working frequencies 2003, 2142, 2638, 2738, or 2830 kHz, must first establish communications with other ship stations by call and reply on 2182 kHz. Calls may be initiated on an intership working frequency when it is known that the called vessel maintains a simultaneous watch on the working frequency and on 2182 kHz.

(2) Except when other operating procedures are used to expedite safety communications, the frequency 156.800 MHz must be used for call and reply by ship stations and marine utility stations before establishing communication on one of the intership working frequencies. Calls may be initiated on an intership working frequency when it is known that the called vessel maintains a simultaneous watch on the working frequency and on 156.800 MHz.

(c) *Change to working frequency.* After establishing communication with another station by call and reply on 2182 kHz or 156.800 MHz stations on board ship must change to an authorized

working frequency for the transmission of messages.

(d) *Limitations on calling.* Calling a particular station must not continue for more than 30 seconds in each instance. If the called station does not reply, the station must not again be called until after an interval of 2 minutes. When a called station called does not reply to a call sent three times at intervals of 2 minutes, the calling must cease and must not be renewed until after an interval of 15 minutes; however, if there is no reason to believe that harmful interference will be caused to other communications in progress, the call sent three times at intervals of 2 minutes may be repeated after a pause of not less than 3 minutes. In event of an emergency involving safety, the provisions of this paragraph do not apply.

(e) *Limitations on working.* Any one exchange of communications between any two ship stations on 2003, 2142, 2638, 2738, or 2830 kHz or between a ship station and a private coast station on 2738 or 2830 kHz must not exceed 3 minutes after the stations have established contact. Subsequent to such exchange of communications, the same two stations must not again use 2003, 2142, 2638, 2738, or 2830 kHz for communication with each other until 10 minutes have elapsed.

(f) *Transmission limitation on 2182 kHz and 156.800 MHz.* To facilitate the reception of distress calls, all transmissions on 2182 kHz and 156.800 MHz (channel 16) must be minimized and transmissions on 156.800 MHz must not exceed 1 minute.

(g) *Limitations on commercial communication.* On frequencies in the band 156–162 MHz, the exchange of commercial communication must be limited to the minimum practicable transmission time. In the conduct of ship-shore communication other than distress, stations on board ship must comply with instructions given by the private coast station or marine utility station on shore with which they are communicating.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46961, Aug. 7, 2003]

SPECIAL PROCEDURES—PUBLIC COAST STATIONS

§ 80.121 Public coast stations using telegraphy.

(a) *Narrow-band direct-printing (NB-DP) operating procedures.* (1) When both terminals of the NB-DP circuit are satisfied that the circuit is in operable condition, the message preamble must be transmitted in the following format:

(i) One carriage return and one line feed,

(ii) Serial number or number of the message,

(iii) The name of the office of origin,

(iv) The number of words,

(v) The date of handing in of the message,

(vi) The time of handing in of the message, and

(vii) Any service instructions. (See The ITU ''Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services''.)

(2) Upon completion of transmission of the preamble, the address, text and signature must be transmitted as received from the sender.

(3) Upon completion of transmission of the signature the coast station must, following the signal ''COL'', routinely repeat all service indications in the address and for figures or mixed groups of letters, figures or signs in the address, text or signature.

(4) In telegrams of more than 50 words, routine repetition must be given at the end of each page.

(5) Paragraphs (a) (1) through (4) of this section need not be followed when a direct connection is employed.

(6) In calling ship stations by narrow-band direct-printing, the coast station must use the ship station selective calling number (5 digits) and its assigned coast station identification number (4 digits). Calls to ship stations must employ the following format: Ship station selective call number, repeated twice; ''DE'', sent once; and coast station identification number, repeated twice. When the ship station does not reply to a call sent three times at intervals of two minutes, the calling must cease and must not be renewed until after an interval of fifteen minutes.

(7) A public coast station authorized to use NB-DP frequencies between 4000 kHz and 27500 kHz may use class A1A emission on the ''mark'' frequency for station identification and for establishing communications with ship stations. The radio station license must reflect authority for this type of operation, and harmful interference must not be caused.

(b) *Watch on ship calling frequencies.* (1) Public coast stations using telegraphy must maintain a continuous watch during their working hours for calls from ship stations on frequencies in the same band(s) in which the coast station is licensed to operate. See subpart H of this part.

(2) Such station must employ receivers which are capable of being accurately set to any designated calling frequency in each band for which the receiver is intended to operate. The time required to set the receiver to a frequency must not exceed five seconds. The receiver must have a long term frequency stability of not more than 50 Hz and a minimum sensitivity of two microvolts across receiver input terminals of 50 ohms, or equivalent. The audio harmonic distortion must not exceed five percent at any rated output power.

(c) *Radiotelegraph frequencies.* Radiotelegraph frequencies available for assignment to public coast stations are contained in subpart H of this part.

§ 80.122 Public coast stations using facsimile and data.

Facsimile operations are a form of telegraphy for the transmission and receipt of fixed images between authorized coast and ship stations. Facsimile and data techniques may be implemented in accordance with the following paragraphs.

(a) *Supplemental Eligibility Requirements.* Public coast stations are eligible to use facsimile and data techniques with ship stations.

(b) *Assignment and use of frequencies.* (1) Frequencies in the 2000–27500 kHz bands in part 2 of this chapter as available for shared use by the maritime mobile service and other radio services are assignable to public coast stations for providing facsimile communications with ship stations. Additionally, frequencies in the 156–162 MHz and 216–220 MHz bands available for assignment to public coast stations for radiotelephone communications that are contained in subpart H of this part are also available for facsimile and data communications.

(2) Equipment used for facsimile and data operations is subject to the applicable provisions of subpart E of this part.

(3) The use of voice on frequencies authorized for facsimile operations in the bands 2000–27500 kHz listed in subpart H of this part is limited to setup and confirmation of receipt of facsimile transmissions.

[57 FR 43407, Sept. 21, 1992, as amended at 67 FR 48564, July 25, 2002]

§ 80.123 Service to stations on land.

Marine VHF public coast stations, including AMTS coast stations, may provide service to stations on land in accordance with the following:

(a) The public coast station licensee must provide each associated land station with a letter, which shall be presented to authorized FCC representatives upon request, acknowledging that the land station may operate under the authority of the associated public coast station's license:

(b) Each public coast station serving stations on land must afford priority to marine-originating communications through any appropriate electrical or mechanical means.

(c) Land station identification shall consist of the associated public coast station's call sign, followed by a unique numeric or alphabetic unit identifier;

(d) Radio equipment used on land must be certified for use under part 22, part 80, or part 90 of this chapter. Such equipment must operate only on the public correspondence channels authorized for use by the associated public coast station;

(e) Transmitter power shall be in accordance with the limits set in § 80.215 for ship stations and antenna height shall be limited to 6.1 meters (20 feet) above ground level;

(f) Land stations may only communicate with public coast stations and must remain within radio range of associated public coast stations; and,

(g) The land station must cease operation immediately upon written notice by the Commission to the associated public coast station that the land station is causing harmful interference to marine communications.

[62 FR 40304, July 28, 1997, as amended at 72 FR 31194, June 6, 2007; 73 FR 4480, Jan. 25, 2008]

SPECIAL PROCEDURES—PRIVATE COAST STATIONS

§ 80.131 Radioprinter operations.

Radioprinter operations provide a relatively low cost system of record communications between authorized coast and ship stations in accordance with the following paragraphs.

(a) *Supplementary eligibility requirement.* A radioprinter authorization for a private coast station may be issued to the owner or operator of a ship of less than 1600 gross tons, a community of ships all of which are less than 1600 gross tons, or an association whose members operate ships of less than 1600 gross tons.

(b) *Scope of communications.* Only those communications which concern the business and operational needs of vessels are authorized.

(c) *Assignment and use of frequencies.* (1) Frequencies may be assigned to private coast stations for radioprinter use from the appropriate bands listed in subpart H of this part.

(2) Frequencies in the listed bands are shared with other radio services including the maritime mobile service. Each assigned frequency is available on a shared use basis only, not for the exclusive use of any one station or licensee.

(d) *Coast station responsibilities.* (1) Private coast stations must propose frequencies and provide the names of ships to be served with the application.

(2) Private coast station licensees must provide copies of their license to all ships with which they are authorized to conduct radioprinter operations.

§ 80.133 Private coast stations using facsimile in Alaska.

Facsimile techniques may be implemented in accordance with the following paragraphs.

(a) Private coast stations in Alaska are eligible to use facsimile techniques with associated ship stations and other private coast stations in accordance with § 80.505(b).

(b) The frequency 156.425 MHz is assigned by rule to private coast stations in Alaska for facsimile transmissions.

(c) Equipment used for facsimile operations is subject to the applicable provisions of subpart E of this part.

[62 FR 40305, July 28, 1997]

SPECIAL PROCEDURES—SHIP STATIONS

§ 80.141 General provisions for ship stations.

(a) *Points of communication.* Ship stations and marine utility stations on board ships are authorized to communicate with any station in the maritime mobile service.

(b) *Service requirements for all ship stations.* (1) Each ship station must receive and acknowledge all communications which are addressed to the ship or to any person on board.

(2) Every ship, on meeting with any direct danger to the navigation of other ships such as ice, a derelict vessel, a tropical storm, subfreezing air temperatures associated with gale force winds causing severe icing on superstructures, or winds of force 10 or above on the Beaufort scale for which no storm warning has been received, must transmit related information to ships in the vicinity and to the authorities on land unless such action has already been taken by another station. All such radio messages must be preceded by the safety signal.

(3) A ship station may accept communications for retransmission to any other station in the maritime mobile service. Whenever such messages or communications have been received and acknowledged by a ship station for this purpose, that station must retransmit the message as soon as possible.

(c) *Service requirements for vessels.* Each ship station provided for compliance with Part II of Title III of the Communications Act must provide a public correspondence service on voyages of more than 24 hours for any person who requests the service. Compulsory radiotelephone ships must provide

this service for at least four hours daily. The hours must be prominently posted at the principal operating location of the station.

(d) Operating conditions. Effective August 1, 1994, VHF hand-held, portable transmitters used while connected to an external power source or a ship antenna must be equipped with an automatic timing device that deactivates the transmitter and reverts the transmitter to the receive mode after an uninterrupted transmission period of five minutes, plus or minus 10 percent. Additionally, such transmitters must have a device that indicates when the automatic timer has deactivated the transmitter. See also § 80.203(c).

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 57988, Nov. 15, 1991; 68 FR 46961, Aug. 7, 2003]

§ 80.142 Ships using radiotelegraphy.

(a) *Calling by narrow-band direct-printing.* (1) NB-DP ship stations must call United States public coast stations on frequencies designated for NB-DP operation.

(2) Where it is known that the coast station maintains a watch on working frequencies for ship station NB-DP calls the ship station must make its initial NB-DP call on those frequencies.

(3) Calls to a coast station or other ship station must employ the following format: Coast station identification number, repeated twice; ''DE'', sent once; and ship station selective call number, repeated twice. When the coast station does not reply to a call sent three times at intervals of two minutes, the calling must cease for fifteen minutes.

(b) *NB–DP operating procedure.* The operation of NB–DP equipment in the maritime mobile service must be in accordance with the operating procedures contained in ITU–R M.492–6 (incorporated by reference, see § 80.7).

(c) *Required channels for radiotelegraphy.* (1) Each ship station using telegraphy on frequencies within the band 405–525 kHz must be capable of:

(i) Transmit on at least two working frequencies and receive on all other frequencies necessary for their service using authorized emissions, and

(ii) When a radiotelegraph installation is compulsory, a fourth frequency within this band which is authorized specifically for direction finding must also be provided.

(2) Each ship station using telegraphy on frequencies within the band 90–160 kHz must be capable of transmitting and receiving Class A1A emission on the frequency 143 kHz, and on at least two additional working frequencies within this band except that portion between 140 kHz and 146 kHz.

(3) Each ship station using telegraphy and operating in the bands between 4000–27500 kHz must be capable of transmitting and receiving Class A1A or J2A emission on at least one frequency authorized for calling and at least two frequencies authorized for working in each of the bands for which facilities are provided to carry on its service.

(4) Each ship station using telegraphy in Region 2 on frequencies within the band 2065–2107 kHz must be capable of transmitting and receiving Class A1A or J2A emission on at least one frequency in this band authorized for working in addition to a frequency in this hand authorized for calling.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 49993, Dec. 4, 1989; 68 FR 46961, Aug. 7, 2003; 69 FR 64672, Nov. 8, 2004; 76 FR 67610, Nov. 2, 2011]

§ 80.143 Required frequencies for radiotelephony.

(a) Except for compulsory vessels, each ship radiotelephone station licensed to operate in the band 1605–3500 kHz must be able to receive and transmit J3E emission on the frequency 2182 kHz. Ship stations are additionally authorized to receive and transmit H3E emission for communications with foreign coast stations and with vessels of foreign registry. If the station is used for other than safety communications, it must be capable also of receiving and transmitting the J3E emission on at least two other frequencies in that band. However, ship stations which operate exclusively on the Mississippi River and its connecting waterways, and on high frequency bands above 3500 kHz, need be equipped with 2182 kHz and one other frequency within the band 1605–3500 kHz.

(b) Except as provided in paragraph (c) of this section, at least one VHF radiotelephone transmitter/receiver must be able to transmit and receive on the following frequencies:

(1) The distress, safety and calling frequency 156.800 MHz;

(2) The primary intership safety frequency 156.300 MHz;

(3) One or more working frequencies; and

(4) All other frequencies necessary for its service.

(c) Where a ship ordinarily has no requirement for VHF communications, handheld VHF equipment may be used solely to comply with the bridge-to-bridge navigational communication requirements contained in subpart U of this part.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35244, Sept. 18, 1987; 68 FR 46961, Aug. 7, 2003]

§ 80.145 [Reserved]

SHIPBOARD GENERAL PURPOSE WATCHES

§ 80.146 [Reserved]

§ 80.147 Watch on 2182 kHz.

Ship stations must maintain a watch on 2182 kHz as prescribed by § 80.304.

[68 FR 46962, Aug. 7, 2003]

§ 80.148 Watch on 156.8 MHz (Channel 16).

Each compulsory vessel, while underway, must maintain a watch for radiotelephone distress calls on 156.800 MHz whenever such station is not being used for exchanging communications. For GMDSS ships, 156.525 MHz is the calling frequency for distress, safety, and general communications using digital selective calling and the watch on 156.800 MHz is provided so that ships not fitted with DSC will be able to call GMDSS ships, thus providing a link between GMDSS and non-GMDSS compliant ships. The watch on 156.800 MHz is not required:

(a) Where a ship station is operating only with handheld bridge-to-bridge VHF radio equipment under § 80.143(c) of this part; or

(b) For vessels subject to the Bridge-to-Bridge Act and participating in a Vessel Traffic Service (VTS) system when the watch is maintained on both the bridge-to-bridge frequency and a separately assigned VTS frequency.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 16504, Mar. 29, 1993; 68 FR 46962, Aug. 7, 2003; 73 FR 4480, Jan. 25, 2008; 76 FR 67611, Nov. 2, 2011]

VIOLATIONS

§ 80.149 Answer to notice of violation.

(a) Any person receiving official notice of violation of the terms of the Communications Act, any legislative act, executive order, treaty to which the United States is a party, terms of a station or operator license, or the rules and regulations of the Federal Communications Commission must within 10 days from such receipt, send a written answer, in duplicate, to the office of the Commission originating the official notice. If an answer cannot be sent or an acknowledgment made within such 10-day period by reason of illness or other unavoidable circumstances, acknowledgment and answer must be made at the earliest practicable date with a satisfactory explanation of the delay. The answer to each notice must be complete in itself and must not be abbreviated by references to other communications or answers to other notices. The answer must contain a full explanation of the incident involved and must set forth the action taken to prevent a continuation or recurrence. If the notice relates to lack of attention to or improper operation of the station or to log or watch discrepancies, the answer must give the name and license number of the licensed operator on duty.

(b) When an official notice of violation, impending violation, or discrepancy, pertaining to any provision of Part II of Title III of the Communications Act or the radio provisions of the Safety Convention, is served upon the master or person responsible for a vessel and any instructions appearing on such document issued by a representative of the Commission are at variance with the content of paragraph (a) of this section, the instructions issued by the Commission's representative supersede those set forth in paragraph (a) of this section.

Subpart D—Operator Requirements

§ 80.151 Classification of operator licenses and endorsements.

(a) Commercial radio operator licenses issued by the Commission are classified in accordance with the Radio Regulations of the International Telecommunication Union.

(b) The following licenses are issued by the Commission. The international classification of each license, if different from the license name, is given in parentheses. The listed alphanumeric designators are the codes by which the licenses are identified in the Commission's Universal Licensing System.

(1) RR. Restricted Radiotelephone Operator Permit (radiotelephone operator's restricted certificate).

(2) RL. Restricted Radiotelephone Operator Permit-Limited Use.

(3) MP. Marine Radio Operator Permit (radiotelephone operator's restricted certificate).

(4) PG. General Radiotelephone Operator License (radiotelephone operator's general certificate).

(5) DO. GMDSS Radio Operator's License (General Operator's Certificate).

(6) RG. Restricted GMDSS Radio Operator's License (Restricted Operator's Certificate).

(7) DM. GMDSS Radio Maintainer's License.

(8) DB. GMDSS Radio Operator/Maintainer License.

(9) T3. Third Class Radiotelegraph Operator's Certificate (radiotelegraph operator's special certificate).

(9) T–3. Third Class Radiotelegraph Operator's Certificate (radiotelegraph operator's special certificate). Beginning May 20, 2013, no applications for new Third Class Radiotelegraph Operator's Certificates will be accepted for filing.

(10) T–2. Second Class Radiotelegraph Operator's Certificate. Beginning May 20, 2013, no applications for new Second Class Radiotelegraph Operator's Certificates will be accepted for filing.

(11) T–1. First Class Radiotelegraph Operator's Certificate. Beginning May 20, 2013, no applications for new First Class Radiotelegraph Operator's Certificates will be accepted for filing.

(12) T. Radiotelegraph Operator License.

(c) The following license endorsements are affixed by the Commission to provide special authorizations or restrictions. Applicable licenses are given in parentheses.

(1) Ship Radar endorsement (First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, Radiotelegraph Operator License, General Radiotelephone Operator License).

(2) Six Months Service endorsement (First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, Radiotelegraph Operator License).

(3) Restrictive endorsements; relating to physical disabilities, English language or literacy waivers, or other matters (all licenses).

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46962, Aug. 7, 2003; 76 FR 67611, Nov. 2, 2011; 78 FR 23155, Apr. 18, 2013]

COAST STATION OPERATOR REQUIREMENTS

§ 80.153 Coast station operator requirements.

(a) Except as provided in § 80.179, operation of a coast station transmitter must be performed by a person who is on duty at the control point of the station. The operator is responsible for the proper operation of the station.

(b) An operational fixed station associated with a coast station may be operated by the operator of the associated coast station.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 10008, Mar. 9, 1989; 54 FR 40058, Sept. 29, 1989; 62 FR 40305, July 28, 1997; 67 FR 48564, July 25, 2002]

SHIP STATION OPERATOR REQUIREMENTS

§ 80.155 Ship station operator requirements.

Except as provided in §§ 80.177 and 80.179, operation of transmitters of any ship station must be performed by a person holding a commercial radio operator license or permit of the class required below. The operator is responsible for the proper operation of the station.

[54 FR 10008, Mar. 9, 1989]

§ 80.156 Control by operator.

The operator on board ships required to have a holder of a commercial operator license or permit on board may, if authorized by the station licensee or master, permit an unlicensed person to modulate the transmitting apparatus for all modes of communication except Morse code radiotelegraphy.

[51 FR 34984, Oct. 1, 1986]

§ 80.157 Radio officer defined.

A *radio officer* means a person holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License issued by the Commission, who is employed to operate a ship radio station in compliance with Part II of Title II of the Communications Act. Such a person is also required to be licensed as a *radio officer* by the U.S. Coast Guard when employed to operate a ship radiotelegraph station.

[78 FR 23155, Apr. 18, 2013]

§ 80.159 Operator requirements of Title III of the Communications Act and the Safety Convention.

(a) Each telegraphy passenger ship equipped with a radiotelegraph station in accordance with Part II of Title III of the Communications Act must carry two radio officers holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License.

(b) Each cargo ship equipped with a radiotelegraph station in accordance with Part II of Title II of the Communications Act and which has a radiotelegraph auto alarm must carry a radio officer holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License who has had at least six months service as a radio officer on board U.S. ships. If the radiotelegraph station does not have an auto alarm, a second radio officer who holds a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License must be carried.

(c) Each cargo ship equipped with a radiotelephone station in accordance with Part II of Title III of the Communications Act must carry a radio operator who meets the following requirements:

(1) Where the station power does not exceed 1500 watts peak envelope power, the operator must hold a marine radio operator permit or higher class license.

(2) Where the station power exceeds 1500 watts peak envelope power, the operator must hold a general radiotelephone radio operator license or higher class license.

(d) Each passenger ship equipped with a GMDSS installation in accordance with subpart W of this part shall carry at least two persons holding an appropriate GMDSS Radio Operator License or, if the passenger ship operates exclusively within twenty nautical miles of shore, at least two persons holding either a GMDSS Radio Operator License or a Restricted GMDSS Radio Operator License, as specified in § 13.7 of this chapter.

(e) Each ship transporting more than six passengers for hire equipped with a radiotelephone station in accordance with Part III of Title III of the Communications Act must carry a radio operator who meets the following requirements:

(1) Where the station power does not exceed 250 watts carrier power or 1500 watts peak envelope power, the radio operator must hold a marine radio operator permit or higher class license.

(2) Where the station power exceeds 250 watts carrier power or 1500 watts peak envelope power, the radio operator must hold a general radiotelephone operator license or higher class license.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40058, Sept. 29, 1989; 68 FR 46962, Aug. 7, 2003; 78 FR 23155, Apr. 18, 2013]

§ 80.161 Operator requirements of the Great Lakes Radio Agreement.

Each ship subject to the Great Lakes Radio Agreement must have on board an officer or member of the crew who holds a marine radio operator permit or higher class license.

§ 80.163 Operator requirements of the Bridge-to-Bridge Act.

Each ship subject to the Bridge-to-Bridge Act must have on board a radio operator who holds a restricted radiotelephone operator permit or higher class license.

§ 80.165 Operator requirements for voluntary stations.

MINIMUM OPERATOR LICENSE

Ship Morse telegraph	T.
Ship direct-printing telegraph	MP.
Ship telephone, with or without DSC, more than 250 watts carrier power or 1,000 watts peak envelope power.	PG.
Ship telephone, with or without DSC, not more than 250 watts carrier power or 1,000 watts peak envelope power.	MP.
Ship telephone, with or without DSC, not more than 100 watts carrier power or 400 watts peak envelope power.	
Above 30 MHz	None.[1]
Below 30 MHz	RP.
Ship earth station	RP.

[1] RP required for compulsory ships and international voyages.

[76 FR 67611, Nov. 2, 2011, as amended at 78 FR 23155, Apr. 18, 2013]

GENERAL OPERATOR REQUIREMENTS

§ 80.167 Limitations on operators.

The operator of maritime radio equipment other than T–1, T–2, T, or G licensees must not:

(a) Make equipment adjustments which may affect transmitter operation;

(b) Operate any transmitter which requires more than the use of simple external switches or manual frequency selection or transmitters whose frequency stability is not maintained by the transmitter itself.

[51 FR 31213, Sept. 2, 1986, as amended at 78 FR 23155, Apr. 18, 2013

§ 80.169 Operators required to adjust transmitters or radar.

(a) All adjustments of radio transmitters in any radiotelephone station or coincident with the installation, servicing, or maintenance of such equipment which may affect the proper operation of the station, must be performed by or under the immediate supervision and responsibility of a person holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, Radiotelegraph Operator License, or General Radiotelephone Operator License.

(b) Only persons holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, or Radiotelegraph Operator License must perform such functions at radiotelegraph stations transmitting Morse code.

(c) Only persons holding an operator certificate containing a ship radar endorsement must perform such functions on radar equipment.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40058, Sept. 29, 1989; 78 FR 23155, Apr. 18, 2013]

§ 80.175 Availability of operator licenses.

All operator licenses required by this subpart must be readily available for inspection.

§ 80.177 When operator license is not required.

(a) No radio operator authorization is required to operate:

(1) A shore radar, a shore radiolocation, maritime support or shore radionavigation station;

(2) A survival craft station or an emergency position indicating radio beacon;

(3) A ship radar station if:

(i) The radar frequency is determined by a nontunable, pulse type magnetron or other fixed tuned device, and

(ii) The radar is capable of being operated exclusively by external controls;

(4) An on board station; or

(5) A ship station operating in the VHF band on board a ship voluntarily equipped with radio and sailing on a domestic voyage.

(b) No radio operator license is required to install a VHF transmitter in a ship station if the installation is made by, or under the supervision of, the licensee of the ship station and if modifications to the transmitter other than front panel controls are not made.

(c) No operator license is required to operate coast telephone stations or marine utility stations.

(d) No radio operator license is required to install a radar station on a voluntarily equipped ship when a manual is included with the equipment that provides step-by-step instructions for the installation, calibration, and operation of the radar. The installation must be made by, or under the supervision of, the licensee of that ship station and no modifications or adjustments other than to the front panel controls are to be made to the equipment.

[51 FR 31213, Sept. 2, 1986, as amended at 53 FR 41434, Oct. 28, 1987; 62 FR 40305, July 28, 1997]

§ 80.179 Unattended operation.

The following unattended transmitter operations are authorized:

(a) EPIRB operations when emergency conditions preclude attendance of the EPIRB transmitter by a person.

(b) Automatic use of a transmitter during narrow-band direct-printing (NB-DP) operations in accordance with § 80.219.

(c) Automatic use of a transmitter during selective calling operations in accordance with § 80.225.

(d) Automatic use of a transmitter when operating as part of the Automated Maritime Telecommunications System (AMTS), an automated multi-station system for which provisions are contained in this part, or an automated public coast station.

(e) Automatic use of a VHF transmitter to send brief digital communications relating to the condition or safety of vessels while moored when all of the following conditions are met:

(1) The equipment must be using DSC in accordance with ITU–R M.493–13 and ITU–R M.541–9 (both incorporated by reference, see § 80.7), as modified by this section.

(2) Sensors must automatically activate the transmitter only under one or more of the following conditions:

(i) Fire, explosion;

(ii) Flooding;

(iii) Collision;

(iv) Grounding;

(v) Listing, in danger of capsizing;

(vi) Sinking;

(vii) Disabled and adrift; and

(viii) Undesignated condition related to ship safety.

(3) The ''ROUTINE'' DSC category must be used.

(4) Communications must be selectively addressed to an individual station.

(5) Transmitter output power must not exceed one watt.

(6) The call must employ a fixed format and must be in conformity with Recommendation 493 as follows:

Format specifier: Individual call—symbol 120 sent twice.
Address: 9 digit maritime mobile service identity of called station.
Category: Routine—symbol 100.
Self-identification: 9 digit ship station identity.
Message 1: Telecommand symbol 126 sent twice.
Message 2: Telecommand symbol 126 sent 6 times.
End of sequence: Symbol 127.
Error-check character: Check sum.

(7) Such transmissions are permitted only on channel 70 and the transmitter must be inhibited automatically whenever there is another call in progress on Channel 70.

(8) The call sequence for any one alarm must not be repeated until after an interval of at least five seconds. Further repetition is permitted only after intervals of at least fifteen minutes each. Repetitions following fifteen-minute waiting intervals must not exceed three.

[54 FR 10008, Mar. 9, 1989, as amended at 62 FR 40305, July 28, 1997; 68 FR 46962, Aug. 7, 2003; 73 FR 4481, Jan. 25, 2008; 76 FR 67611, Nov. 2, 2011]

Subpart E—General Technical Standards

§ 80.201 Scope.

This subpart gives the general technical requirements for the use of frequencies and equipment in the maritime services. These requirements include standards for equipment authorization, frequency tolerance, modulation, emission, power and bandwidth.

§ 80.203 Authorization of transmitters for licensing.

(a) Each transmitter authorized in a station in the maritime services after September 30, 1986, except as indicated in paragraphs (g), (h) and (i) of this section, must be certificated by the Commission for part 80 operations. The procedures for certification are contained in part 2 of this chapter. Transmitters of a model authorized before October 1, 1986 will be considered type accepted for use in ship or coast stations as appropriate.

(b) The external controls, of maritime station transmitters capable of operation in the 156–162 MHz band and manufactured in or imported into the United States after August 1, 1990, or sold or installed after August 1, 1991, must provide for selection of only maritime channels for which the maritime station is authorized. Such transmitters must not be capable of being programmed by station operators using external controls to transmit on channels other than those programmed by the manufacturer, service or maintenance personnel.

(1) Any manufacturer procedures and special devices for programming must only be made available to service companies employing licensed service and maintenance personnel that meet the requirements of § 80.169(a) and must not be made available with information normally provided to consumers.

(2) The channels preprogrammed by manufacturers, service and maintenance personnel for selection by the external controls of a maritime station transmitter must be limited to those channels listed in this part and the duplex channels listed in Appendix 18 of the international Radio Regulations. The duplex channels listed in Appendix 18 of the international Radio Regulations must be used only in the specified duplex mode. Simplex operations on Appendix 18 duplex channels that are not in accordance with this part are prohibited.

(3) Except as provided in paragraph (b)(4) of this section, programming of authorized channels must be performed only by a person holding a First Class Radiotelegraph Operator's Certificate, Second Class Radiotelegraph Operator's Certificate, Radiotelegraph Operator License, or General Radiotelephone Operator License using any of the following procedures:

(4) Notwithstanding paragraph (b)(3) of this section, authorized channels may be programmed via computerized remote control by any person, provided that the remote control operation is designed to preclude the programming of channels not authorized to the licensee.

(5) VHF maritime radio station transmitters capable of being programmed by station operators by means of external controls that are installed in a maritime station by August 1, 1991, are authorized for use indefinitely at the same maritime station.

(c) All VHF ship station transmitters that are either manufactured in or imported into the United States, on or after August 1, 1993, or are initially installed on or after August 1, 1994, must be equipped with an automatic timing device that deactivates the transmitter and reverts the transmitter to the receive mode after an uninterrupted transmission period of five minutes, plus or minus 10 per cent. Additionally, such transmitters must have a device that indicates when the automatic timer has deactivated the transmitter. VHF ship station transmitters initially installed before August 1, 1994, are authorized for use indefinitely at the same maritime station. VHF handheld, portable transmitters are not required to comply with the requirements in paragraph (c) of this section except when used as described in § 80.141.

(d) Except for radar equipment, applicants for certification of radio equipment designed to satisfy Part II of Title III of the Communications Act or the Safety Convention must also

submit with their application a working unit of the type for which certification is desired. Manufacturers of radar equipment intended for installation on voluntarily equipped ships by persons without FCC operators license must include with their equipment authorization application a manual that provides step-by-step procedures for the installation, calibration, and operation of the radar stations.

(e) [Reserved]

(f) Transmitters certificated for single sideband suppressed carrier radiotelephone transmissions may be used for facsimile transmissions without filing for a certification modification provided the transmitters retain certification and comply with the applicable standards in this part.

(g) Manufacturers of ship earth station transmitters intended for use in the INMARSAT space segment must comply with the verification procedures given in part 2 of this chapter. Such equipment must be verified in accordance with the technical requirements provided by INMARSAT and must be type approved by INMARSAT for use in the INMARSAT space segment. The ship earth station input/output parameters, the data obtained when the equipment is integrated in system configuration and the pertinent method of test procedures that are used for type approval of the station model which are essential for the compatible operation of that station in the INMARSAT space segment must be disclosed by the manufacturer upon request of the FCC. Witnessing of the type approval tests and the disclosure of the ship earth station equipment design or any other information of a proprietary nature will be at the discretion of the ship earth station manufacturer.

(h) In addition to the certification requirements contained in part 2 of this chapter, applicants for certification of 406.0–406.1 MHz radiobeacons must also comply with the certification procedures contained in § 80.1061 of this part.

(i) Certification is not required for U.S. Government furnished transmitters to fulfill a U.S. Government contract. However, such transmitters must comply with all technical requirements in this part.

(j) [Reserved]

(k) Certification of individual radio transmitters requested by station applicants or licensees must also follow the certification procedure in paragraph (a) of this section. However, operation of such transmitters must be limited to the specific units individually identified on the station authorization.

(l) Ship station transmitters may be certificated for emissions not shown in § 80.205 of this part. However, such emissions are not authorized for use in the United States or for communications with U.S. coast stations.

(m) Ship station MF, HF, and VHF transmitters may employ external or internal devices to send synthesized voice transmissions for distress and safety purposes on any distress and safety frequency authorized for radiotelephony listed in § 80.369 provided the following requirements are met:

(1) The technical characteristics of the distress transmissions must comply with this part.

(2) A transmitter and any internal device capable of transmitting a synthesized voice message must be certificated as an integral unit.

(3) The synthesized voice distress transmission must begin with the words ''this is a recording'' and should be comprised of at least:

(i) the radiotelephone distress call as described in § 80.315(b) and the ship's position as described in § 80.316(c); or

(ii) the radiotelephone distress message as described in § 80.316(b). If available, the ship's position should be reported as described in § 80.316(c).

(4) Such transmission must be initiated manually by an off-switch that is protected from inadvertent activation and must cause the transmitter to switch to an appropriate distress and safety frequency. The radiotelephone distress call and message described in §§ 80.203(m)(3) (i) and (ii), respectively, may be repeated. However, the entire transmission including repeats must not exceed 45 seconds from beginning to end. Upon ending the transceiver must return to the receive mode and must not be capable of sending the synthesized distress call for at least thirty seconds. Placing the switch to the off

position must stop the distress transmission and permit the transmitter to be used to send and receive standard voice communications.

(5) Use of the microphone must cause the synthesized voice distress transmission to cease and allow the immediate use of the transmitter for sending and receiving standard voice communications.

(6) No ship station shall include any device or provision capable of transmitting any tone or signal on a distress frequency for any purpose unless specific provisions exist in this part authorizing such tone or signal.

(n) Applications for certification of all marine radio transmitters operating in the 2–27.5 MHz band or the 156–162 MHz band received on or after June 17, 1999, must have a DSC capability in accordance with § 80.225. This requirement does not apply to transmitters used with AMTS or hand-held portable transmitters.

(o) Existing equipment that does not comply with the rules in this subpart but was properly authorized as compliant with the rules in effect at the time of its authorization, and remains compliant with the rules in effect at the time of its authorization, may continue to be installed until February 1, 2003.

[51 FR 31213, Sept. 2, 1986, as amended at 53 FR 41434, Oct. 28, 1987; 53 FR 37308, Sept. 26, 1988; 54 FR 31839, Aug. 2, 1989; 56 FR 3787, Jan. 31, 1991; 56 FR 57496, Nov. 12, 1991; 56 FR 57988, Nov. 15, 1991; 57 FR 8727, Mar. 12, 1992; 62 FR 40305, July 28, 1997; 63 FR 36606, July 7, 1998; 68 FR 46962, Aug. 7, 2003; 69 FR 64672, Nov. 8, 2004; 73 FR 4481, Jan. 25, 2008; 78 FR 23156, Apr. 18, 2013; 78 FR 25175, Apr. 29, 2013]

§ 80.205 Bandwidths.

(a) An emission designator shows the necessary bandwidth for each class of emission of a station except that in ship earth stations it shows the occupied or necessary bandwidth, whichever is greater. The following table gives the class of emission and corresponding emission designator and authorized bandwidth:

Class of emission	Emission designator	Authorized bandwidth (kHz)
A1A	160HA1A	0.4
A1B [1]	160HA1B	0.4
A1D [12]	16K0A1D	20.0
A2A	2K66A2A	2.8
A2B [1]	2K66A2B	2.8
A2D [12]	16K0A2D	20.0
A3E	6K00A3E	8.0
A3N [2]	2K66A3N	2.8
A3X [3]	3K20A3X	25.0
F1B [4]	280HF1B	0.3
F1B [5]	300HF1B	0.5
F1B [6]	16KOF1B	20.0
F1C	2K80F1C	3.0
F1D [12]	16K0F1D	20.0
F2B [6]	16KOF2B	20.0
F2C [7]	16KOF2C	20.0
F2D [12]	16K0F2D	20.0
F3C	2K80F3C	3.0
F3C [7]	16KOF3C	20.0
F3E [8]	16KOF3E	20.0
F3N [9]	20MOF3N	20,000.0
G1D [12]	16K0G1D	20.0
G2D [12]	16K0G2D	20.0
G3D [10]	16KOG3D	20.0
G3E [8]	16KOG3E	20.0
G3N [3 13]	16KOG3N	20.0
H2A	1K40H2A	2.8
H2B [1]	1K40H2B	2.8
H3E [11]	2K80H3E	3.0
H3N	2K66H3N	2.8
J2A	160HJ2A	0.4
J2B [4]	280HJ2B	0.3
J2B [5]	300HJ2B	0.5
J2B	2K80J2B	3.0
J2C	2K80J2C	3.0
J2D [14]	2K80J2D	3.0
J3C	2K80J3C	3.0
J3E [11]	2K80J3E	3.0
J3N	160HJ3N	0.4
NON	NON	0.4
PON	([12])	([12])
R3E [11]	2K80R3E	3.0

[1] On 500 kHz and 2182 kHz A1B, A2B, H2B and J2B emissions indicate transmission of the auto alarm signals.

[2] Applicable only to transmissions in the 405–525 kHz band for direction finding.

[3] Applicable only to EPIRB's.

[4] Radioprinter transmissions for communications with private coast stations.

[5] NB-DP radiotelegraph and data transmissions for communications with public coast stations.

[6] Applicable only to radioprinter and data in the 156–162 MHz band and radioprinter in the 216–220 MHz band.

[7] Applicable only to facsimile in the 156–162 MHz and 216–220 MHz bands.

[8] Applicable only when maximum frequency deviation is 5 kHz. See also paragraph (b) of this section.

[9] Applicable only to marine hand-held radar.

[10] Applicable only to on-board frequencies for maneuvering or navigation.

[11] Transmitters approved prior to December 31, 1969, for emission H3E, J3E and R3E and an authorized bandwidth of 3.5 kHz may continue to be operated. These transmitters will not be authorized in new installations.

[12] Applicable to radiolocation and associated telecommand ship stations operating on 154.585 MHz, 159.480 MHz, 160.725 MHz. 160.785 MHz, 454.000 MHz, and 459.000 MHz; emergency position indicating radiobeacons operating in the 406.000–406.1000 MHz frequency bank; and data transmissions in the 156–162 MHz band.

[13] [Reserved]

[14] The information is contained in multiple very low level subcarriers.

(b) For land stations the maximum authorized frequency deviation for F3E or G3E emission is as follows:

(1) 5 kHz in the 72.0–73.0 MHz, 75.4–76.0 MHz and 156–162 MHz bands;

(2) 15 kHz for stations which were authorized for operation before December 1, 1961, in the 73.0–74.6 MHz band.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7418, Mar. 11, 1987; 53 FR 37308, Sept. 26, 1988; 56 FR 11516, Mar. 19, 1991; 57 FR 43407, Sept. 21, 1992; 58 FR 33344, June 17, 1993; 59 FR 7714, Feb. 16, 1994; 62 FR 40305, July 28, 1997; 63 FR 36606, July 7, 1998; 68 FR 46962, Aug. 7, 2003; 76 FR 67611, Nov. 2, 2011]

§ 80.207 Classes of emission.

(a) Authorization to use radiotelephone and radiotelegraph emissions by ship and coast stations includes the use of digital selective calling and selective calling techniques in accordance with § 80.225.

(b) In radiotelegraphy communications employing a modulated carrier the carrier must be keyed and modulated by an audio frequency.

(c) Authorization to use single sideband emission is limited to emitting a carrier;

(1) For full carrier transmitters at a power level between 3 and 6 dB below peak envelope power;

(2) For suppressed carrier transmitters at a power level at least 40 dB below peak envelope power; and

(3) For reduced or variable level carrier:

(i) In the 1600–4000 kHz band:

(A) For coast station transmitters 18±2 dB below peak envelope power;

(B) For ship station transmitters installed before January 2, 1982, 16±2 dB below peak envelope power; and

(C) For ship station transmitters installed after January 1, 1982, 18±2 dB below peak envelope power.

(ii) In the 4000–27500 kHz band:

(A) For coast station transmitters 18±2 dB below peak envelope power;

(B) For ship station transmitters installed before January 2, 1978, 16±2 dB below peak envelope power; and

(C) For ship station transmitters installed after January 1, 1978, 18±2 dB below peak envelope power.

(d) The authorized classes of emission are as follows:

Types of stations	Classes of emission
Ship Stations [1]	
Radiotelegraphy:	
100–160 kHz	A1A.
405–525 kHz	A1A, J2A.
1615–27500 kHz:	
Manual [15 16 17]	A1A, J2A, J2B, J2D.
DSC [6]	F1B, J2B.
NB–DP [14 16]	F1B, J2B, J2D.
Facsimile	F1C, F3C, J2C, J3C.
156–162 MHz [2]	F1B, F2B, F2C, F3C, F1D, F2D.
DSC	G2B.
216–220 MHz [3]	F1B, F2B, F2C, F3C.
1626.5–1646.5 MHz	([4]).
Radiotelephony:	
1615–27500 kHz [16]	H3E, J2D, J3E, R3E.
27.5–470 MHz [6]	G3D, G3E.
1626.5–1646.5 MHz	([4]).
Radiodetermination:	
285–325 kHz [7]	A1A, A2A.
405–525 kHz (Direction Finding) [8]	A3N, H3N, J3N, NON.
154–459 MHz: [12]	A1D, A2D, F1D, F2D, G1D, G2D.
2.4–9.5 GHz	PON.
Land Stations [1]	
Radiotelegraphy:	
100–160 kHz	A1A.
405–525 kHz	A1A, J2A.
1605–2850 kHz:	
Manual	A1A, J2A.
Facsimile	F1C, F3C, J2C, J3C.
Alaska-Fixed	A1A, J2A.
4000–27500 kHz:	
Manual [16]	A1A, J2A, J2B, J2D.
DSC [18]	F1B, J2B.
NB–DP [14 18]	F1,B J2B, J2D.
Facsimile	F1C, F3C, J2C, J3C.
Alaska-Fixed [17 18]	A1A, A2A, F1B, F2B, J2B, J2D.
72–76 MHz	A1A, A2A, F1B, F2B.

Types of stations	Classes of emission
156–162 MHz [2] [20]	F1B, F2B, F2C, F3C, F1D, F2D.
DSC	G2B.
216–220 MHz [3]	F1B, F2B, F2C, F3C.
Radiotelephony:	
1615–27500 kHz [18] [19]	H3E, J3E, R3E.
72–76 MHz	A3E, F3E, G3E.
156–470 MHz	G3E.
Radiodetermination:	
2.4–9.6 GHz	PON.
Distress, Urgency and Safety [8] [9]	
2182 kHz [10] [11]	A2B, A3B, H2B, H3E, J2B, J3E.
121.500 MHz	A3E, AEX, N0N.
123.100 MHz	A3E.
156.750 and 156.800 MHz [13]	G3E, G3N.
243.000 MHz	A3E, A3X, N0N.
406.0–406.1 MHz	G1D.

[1] Excludes distress, EPIRBs, survival craft, and automatic link establishment.
[2] Frequencies used for public correspondence and in Alaska 156.425 MHz. *See* §§ 80.371(c), 80.373(f) and 80.385(b). Transmitters approved before January 1, 1994, for G3E emissions will be authorized indefinitely for F2C, F3C, F1D and F2D emissions. Transmitters approved on or after January 1, 1994, will be authorized for F2C, F3C, F1D or F2D emissions only if they are approved specifically for each emission designator.
[3] Frequencies used in the Automated Maritime Telecommunications System (AMTS). *See* § 80.385(b).
[4] Types of emission are determined by the INMARSAT Organization.
[5] [Reserved]
[6] G3D emission must be used only by one-board stations for maneuvering or navigation.
[7] Frequencies used for cable repair operations. *See* § 80.375(b).
[8] For direction finding requirements see § 80.375.
[9] Includes distress emissions used by ship, coast, EPIRBs and survival craft stations.
[10] On 2182 kHz A1B, A2B, H2B and J2B emissions indicate transmission of the auto alarm signals.
[11] Ships on domestic voyages must use J3E emission only.
[12] For frequencies 154.585 MHz, 159.480 MHz, 160.725 MHz, 160.785 MHz, 454.000 MHz and 459.000 MHz, authorized for offshore radiolocation and related telecommand operations.
[13] [Reserved]
[14] NB–DP operations which are not in accordance with ITU–R Recommendations M.625 or M.476 are permitted to utilize any modulation, so long as emissions are within the limits set forth in § 80.211(f).
[15] J2B is permitted only on 2000–27500 kHz.
[16] J2D is permitted only on 2000–27500 kHz, and ship stations employing J2D emissions shall at no time use a peak envelope power in excess of 1.5 kW per channel.
[17] J2B and J2D are permitted provided they do not cause harmful interference to A1A.
[18] Coast stations employing J2D emissions shall at no time use a peak envelope power in excess of 10 kW per channel.
[19] J2D is permitted only on 2000–27500 kHz.
[20] If a station uses another type of digital emission, it must comply with the emission mask requirements of § 90.210 of this chapter, except that Automatic Identification System (AIS) transmissions do not have to comply with the emission mask requirements of § 90.210 of this chapter.

[51 FR 31213, Sept. 2, 1986]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 80.207, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 80.209 Transmitter frequency tolerances.

(a) The frequency tolerance requirements applicable to transmitters in the maritime services are shown in the following table. Tolerances are given as parts in 10^6 unless shown in Hz.

Frequency bands and categories of stations	Tolerances [1]
(1) Band 100–525 kHz:	
(i) Coast stations:	
For single sideband emissions	20 Hz.
For transmitters with narrow-band direct printing and data emissions	10 Hz [2]
For transmitters with digital selective calling emissions	10 Hz.
For all other emissions	100.
(ii) Ship stations:	
For transmitters with narrow-band direct printing and data emissions	20 Hz.
For transmitters with digital selective calling emissions	10 Hz [2]
For all other transmitters	10 Hz.
(iii) Ship stations for emergency only:	
For all emissions	20 Hz.
(iv) Survival craft stations:	
For all emissions	20 Hz.
(v) Radiodetermination stations:	
For all emissions	100.

Frequency bands and categories of stations	Tolerances [1]
(2) Band 1600–4000 kHz:	
(i) Coast stations and Alaska fixed stations:	
For single sideband and facsimile	20 Hz.
For narrow-band direct printing and data emissions	10 Hz. [2]
For transmitters with digital selective calling emissions	10 Hz. [2]
For all other emissions	50 Hz.
(ii) Ship stations:	
For transmitters with narrow-band direct printing and data emissions	10 Hz. [2]
For transmitters with digital selective calling emissions	10 Hz. [3]
For all other transmitters	20 Hz.
(iii) Survival craft stations:	20 Hz.
(iv) Radiodetermination stations:	
With power 200W or less	20.
With power above 200W	10.
(3) Band 4000–27500 kHz:	
(i) Coast stations and Alaska fixed stations:	
For single sideband and facsimile emissions	20 Hz.
For narrow-band direct printing and data emissions	10 Hz. [2]
For digital selective calling emissions	10 Hz.
For Morse telegraphy emissions	10.
For all other emissions	15 Hz.
(ii) Ship stations:	
For transmitters with narrow-band direct printing and data emissions	10 Hz. [2]
For transmitters with digital selective calling emissions	10 Hz. [3]
For all other transmitters	20 Hz.
(iii) Survival craft stations:	50 Hz.
(4) Band 72–76 MHz:	
(i) Fixed stations:	
Operating in the 72.0–73.0 and 75.4–76.0 MHz bands	5.
Operating in the 73.74.6 MHz band	50.
(5) Band 156–162 MHz:	
(i) Coast stations:	
For carriers licensed to operate with a carrier power:	
Below 3 watts	10.
3 to 100 watts	5. [7]
(ii) Ship stations	10. [4]
(iii) Survival craft stations operating on 121.500 MHz	50.
(iv) EPIRBs:	
Operating on 121.500 and 243.000 MHz	50.
Operating on 156.750 and 156.800 MHz. [6]	10.
(6) Band 216–220 MHz:	
(i) Coast stations:	
For all emissions	5.
(ii) Ship stations:	
For all emissions	5.
(7) Band 400–466 MHz:	
(i) EPIRBs operating on 406–406.1 MHz	5.
(ii) On-board stations	5.
(iii) Radiolocation and telecommand stations.	5.
(8) Band 1626.5–1646.5 MHz:	
(i) Ship earth stations	5.

[1] Transmitters authorized prior to January 2, 1990, with frequency tolerances equal to or better than those required after this date will continue to be authorized in the maritime services provided they retain approval and comply with the applicable standards in this part.

[2] The frequency tolerance for narrow-band direct printing and data transmitters installed before January 2, 1992, is 15 Hz for coast stations and 20 Hz for ship stations. The frequency tolerance for narrow-band direct printing and data transmitters approved or installed after January 1, 1992, is 10 Hz.

[3] [Reserved]

[4] For transmitters in the radiolocation and associated telecommand service operating on 154.584 MHz, 159.480 MHz, 160.725 MHz and 160.785 MHz the frequency tolerance is 15 parts in 10^6.

[5] [Reserved]

[6] [Reserved]

[7] For transmitters operated at private coast stations with antenna heights less than 6 meters (20 feet) above ground and output power of 25 watts or less the frequency tolerance is 10 parts in 10^6.

(b) When pulse modulation is used in land and ship radar stations operating in the bands above 2.4 GHz the frequency at which maximum emission occurs must be within the authorized bandwidth and must not be closer than 1.5/T MHz to the upper and lower limits of the authorized bandwidth where ''T'' is the pulse duration in microseconds. In the band 14.00–14.05 GHz the center frequency must not vary more than 10 MHz from 14.025 GHz.

(c) For stations in the maritime radiodetermination service, other than ship radar stations, the authorized frequency tolerance will be specified on the license when it is not specified in this part.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7418, Mar. 11, 1987; 53 FR 37308, Sept. 26, 1988; 54 FR 49994, Dec. 4, 1989; 57 FR 26778, June 16, 1992; 58 FR 33344, June 17, 1993; 62 FR 40306, July 28, 1997; 63 FR 36606, July 7, 1998; 68 FR 46964, Aug. 7, 2003; 76 FR 67611, Nov. 2, 2011]

§ 80.211 Emission limitations.

The emissions must be attenuated according to the following schedule.

(a) The mean power when using emissions H3E, J3E and R3E:

(1) On any frequency removed from the assigned frequency by more than 50 percent up to and including 150 percent of the authorized bandwidth:

at least 25 dB for transmitters installed before February 1, 1992,

at least 28 dB for transmitters installed on or after February 1, 1992;

(2) On any frequency removed from the assigned frequency by more than 150 percent up to and including 250 percent of the authorized bandwidth: At least 35 dB; and

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus $10\log_{10}$ (mean power in watts) dB.

(b) For transmitters operating in the band 1626.5–1646.5 MHz. In any 4 kHz band the mean power of emissions shall be attenuated below the mean output power of the transmitter as follows:

(1) Where the center frequency is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 dB;

(2) Where the center frequency is removed from the assigned frequency by more than 100 percent up to 250 percent of the authorized bandwidth: At least 35 dB; and

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus $10\log_{10}$ (mean power in watts) dB.

(c) In any 4 kHz band the peak power of spurious emissions and noise at the input to the transmit antenna must be attenuated below the peak output power of the station as follows:

(1) 125 dB at 1525.0 MHz, increasing linearly to 90 dB at 1612.5 MHz;

(2) 90 dB at 1612.5 MHz increasing linearly to 60 dB at 1624.0 MHz;

(3) 90 dB from 1624.0 MHz to 1650.0 MHz, except at frequencies near the transmitted carrier where the requirements of paragraphs (b)(1) through (3) of this section, apply;

(4) 60 dB at 1650.0 MHz decreasing linearly to 90 dB at 1662.5 MHz;

(5) 90 dB at 1662.5 MHz decreasing linearly to 125 dB at 1752.5 MHz; and

(6) 125 dB outside above range, except for harmonics which must comply with (b)(3) of this section.

(d) The mean power of emissions from radiotelephone survival craft transmitters, 9 GHz search and rescue transponders, and radiotelegraph survival craft transmitters must be attenuated below the mean output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, up to and including 100 percent of the authorized bandwidth: at least 25 dB;

(2) On any frequency removed from the assigned frequency by more than 100 percent of the authorized bandwidth: at least 30 dB.

(e) The mean power of EPIRBs operating on 121.500 MHz, 243.000 MHz and 406.0–406.1 MHz must be as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, up to and including 100 percent of the authorized bandwidth: At least 25 dB;

(2) On any frequency removed from the assigned frequency by more than 100 percent: at least 30 dB.

(f) The mean power when using emissions other than those in paragraphs (a), (b), (c) and (d) of this section:

(1) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 dB;

(2) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 dB; and

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 plus $10\log_{10}$ (mean power in watts) dB.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40058, Sept. 29, 1989; 54 FR 49994, Dec. 4, 1989; 56 FR 11516, Mar. 19, 1991; 62 FR 40306, July 28, 1997; 73 FR 4482, Jan. 25, 2008; 78 FR 25175, Apr. 29, 2013]

§ 80.213 Modulation requirements.

(a) Transmitters must meet the following modulation requirements:

(1) When double sideband emission is used the peak modulation must be maintained between 75 and 100 percent;

(2) When phase or frequency modulation is used in the 156–162 MHz band the peak modulation must be maintained between 75 and 100 percent. A frequency deviation of ±5 kHz is defined as 100 percent peak modulation; and

(3) In single sideband operation the upper sideband must be transmitted. Single sideband transmitters must automatically limit the peak envelope power to their authorized operating power and meet the requirements in § 80.207(c).

(b) Radiotelephone transmitters using A3E, F3E and G3E emission must have a modulation limiter to prevent any modulation over 100 percent. This requirement does not apply to survival craft transmitters, to transmitters that do not require a license or to transmitters whose output power does not exceed 3 watts.

(c) Coast station transmitters operated in the 72.0–73.0 MHz and 75.4–76.0 MHz bands must be equipped with an audio low-pass filter. The filter must be installed between the modulation limiter and the modulated radio frequency stage. At frequencies between 3 kHz and 15 kHz it must have an attenuation greater than at 1 kHz by at least $40\log_{10}$ (f/3) dB where ''f'' is the frequency in kilohertz. At frequencies above 15 kHz the attenuation must be at least 28 dB greater than at 1 kHz.

(d) Ship and coast station transmitters operating in the 156–162 MHz and 216–220 bands must be capable of proper operation with a frequency deviation that does not exceed ±5 kHz when using any emission authorized by § 80.207.

(e) Coast station transmitters operated in the 156–162 MHz band must be equipped with an audio low-pass filter. The filter must be installed between the modulation limiter and the modulated radio frequency stage. At frequencies between 3 kHz and 20 kHz it must have an attenuation greater than at 1 kHz by at least $60\log_{10}(f/3)$ dB where ''f'' is the audio frequency in kilohertz. At frequencies above 20 kHz the attenuation must be at least 50 dB greater than at 1 kHz.

(f) Radiodetermination ship stations operating on 154.585 MHz, 159.480 MHz, 160.725 MHz, 160.785 MHz, 454.000 MHz and 459.000 MHz must employ a duty cycle with a maximum transmission period of 60 seconds followed by a minimum quiescent period four times the duration of the transmission period.

(g) Radar stations operating in the bands above 2.4 GHz may use any type of modulation consistent with the bandwidth requirements in § 80.209(b).

(h) Radar transponder coast stations using the 2900–3100 MHz or 9300–9500 MHz band must operate in a variable frequency mode and respond on their operating frequencies with a maximum error equivalent to 100 meters. Additionally, their response must be encoded with a Morse character starting with a dash. The duration of a Morse dot is defined as equal to the width of a space and ⅓ of the width of a Morse dash. The duration of the response code must not exceed 50 microseconds. The sensitivity of the stations must be adjustable so that received signals below −10 dBm at the antenna will not activate the transponder. Antenna polarization must be horizontal when operating in the 9300–9500 MHz band and either horizontal or both horizontal and vertical when operating in the 2900–3100 MHz band. Racons using frequency agile transmitting techniques must include circuitry designed to reduce interference caused by triggering from radar antenna sidelobes.

(i) Variable frequency ship station transponders operating in the 2900–3100 MHz or 9300–9500 MHz band that are not used for search and rescue purposes must meet the following requirements:

(1) Non-selectable transponders must have the following characteristics:

(i) They must respond on all their frequencies with a maximum range error equivalent to 100 meters;

(ii) They must use a Morse encoding of ''PS'' (dot-dash-dash-dot, dot-dot-dot), meaning ''You should not come any closer''. The width of a Morse dot is defined as equal to the width of a space and ⅓ of the width of a Morse dash;

(iii) When they employ swept frequency techniques they must not transmit on any frequency for more than 10 seconds in any 120 second period;

(iv) Any range offset of their response must occur during their pause on the fixed frequency;

(v) The duration of the response code must not exceed 50 microseconds;

(vi) The sensitivity of the stations must be adjustable so that received signals below −10 dBm at the antenna input will not activate the transponder;

(vii) Antenna polarization must be horizontal when operating in the 9300–9500 MHz band and either horizontal or both horizontal and vertical when operating in the 2900–3100 MHz band.

(viii) Transponders using frequency agile techniques must include circuitry designed to reduce interference caused by triggering from radar antenna sidelobes.

(2) Selectable transponders must be authorized under part 5 of the Commission's rules until standards for their use are developed.

(j) The transmitted signals of search and rescue transponders must cause to appear on a radar display a series of at least 20 equally spaced dots.

(k) The modulation requirements for EPIRB's are contained in subpart V.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7418, Mar. 11, 1987; 52 FR 28825, Aug. 4, 1987; 54 FR 40058, Sept. 29, 1989; 57 FR 43407, Sept. 21, 1992; 65 FR 77824, Dec. 13, 2000; 68 FR 46965, Aug. 7, 2003; 69 FR 64673, Nov. 8, 2004]

§ 80.215 Transmitter power.

(a) Transmitter power shown on the radio station authorization is the maximum power the licensee is authorized to use. Power is expressed in the following terms:

(1) For single sideband emission: Peak evelope power;

(2) For G3E emission: Carrier power;

(3) For PON and F3N emission: Mean power;

(4) For all emissions in the 1626.5–1646.5 MHz band: equivalent isotropic radiated power.

(5) For all other emissions: the carrier power multiplied by 1.67.

(b) *Coast station frequencies below 27500 kHz*. The maximum power must not exceed the values listed below.

(1) Public coast stations, except Alaska:

(i) Radiotelegraphy:

100–160 kHz—80kW
405–525 kHz—40kW
2035–2065 kHz—6.6kW
4000–8000 kHz—10kW
8000–9000 kHz—20kW
12000–27500 kHz—30kW

(ii) Radiotelephony:

2000–4000 kHz—day—800W
2000–4000 kHz—night—400W
4000–27500 kHz—10kW

(2) Private coast stations, except in Alaska: 1kW

(3) Coast stations in Alaska, public and private:

405–525 kHz—265W
1605–12000 kHz—150W

(c) *Coast station frequencies above 27500 kHz*. The maximum power must not exceed the values listed below.

(1) Coast stations:

156–162 MHz–50W [1 2 13]
216–220 MHz [2]

(2) Marine utility stations:

156–162 MHz—10W

(d) *Ship station frequencies below 27500 kHz*. The maximum power must not exceed the values listed below:

(1) Radiotelegraphy: All ships—2kW [3]

(2) Radiotelephony:

(i) All ships—Great Lakes and Inland Waters—150W

(ii) All ships—Open waters; 2000–4000 kHz—150W

[1] Maximum authorized power at the input terminals of the station antenna.

[2] See paragraph (h) of this section.

[3] For passenger ships 5000 gross tons and over—8kW. For cable-repair ships operating on radiodetermination frequencies, 15 watts; see § 80.375(b).

2182 kHz—emergency, urgency, or safety ship to shore—400W [4]

(iii) All ships—Open waters; 4000–27500 kHz—1.5kW [5].

(3) Digital selective calling:

All ships 415–526.5 kHz—400 W
All ships 1605–4000 kHz—400 W
All ships 4000–27500 kHz—1.5 kW

(e) *Ship stations frequencies above 27500 kHz*. The maximum power must not exceed the values listed below.

(1) Ship stations 156–162 MHz—25W [6] [13]
Marine utility stations and hand-held portable transmitters: 156–162 MHz–10W

(2) Ship stations 216–220 MHz—25W [7]

(3) On board stations 456–468 MHz—4W [8]

(4) Ship earth stations 1626.5–1646.5 MHz [9]

(5) Ship radar stations with F3N emission—200 mW

(6) EPIRB—121.500 and 243.00 MHz [10]

(7) EPIRB—156.750 and 156.800 MHz [10]

(f) *Fixed stations*. The maximum power must not exceed the values+ listed below.

(1) Maritime support (receiver test):

R3E and J3C emission—150W
F3E emission—50W

(2) Operational fixed: 72–76 MHz and above 162 MHz [11]

(3) Alaska—Private fixed: [12]

10–200 kHz—650W
405–525 kHz—265W
1605–12000 kHz—150W

(4) Alaska—Public fixed:

405–525 kHz—1kW
1605–12000 kHz—1kW

(g) The carrier power of ship station radiotelephone transmitters, except portable transmitters, operating in the 156–162 MHz band must be at least 8 but not more than 25 watts. Transmitters that use 12 volt lead acid storage batteries as a primary power source must be measured with a primary voltage between 12.2 and 13.7 volts DC. Additionally, unless otherwise indicated, equipment in radiotelephone ship stations operating in the 156–162 MHz band must meet the following requirements:

(1) All transmitters and remote control units must be capable of reducing the carrier power to one watt or less;

(2) Except as indicated in (g)(4) of this section, all transmitters manufactured after January 21, 1987, or in use after January 21, 1997, must automatically reduce the carrier power to one watt or less when the transmitter is tuned to 156.375 MHz or 156.650 MHz, and must be provided with a manual override switch which when held by an operator will permit full carrier power operation on 156.375 MHz and 156.650 MHz;

(3) Except as indicated in (g)(4) of this section, all ship station transmitters installed after January 9, 2006, must be capable of tuning to 156.775 MHz and 156.825 MHz and must automatically reduce the carrier power to one watt or less, with no manual override capability, when the transmitter is tuned to either 156.775 MHz or 156.825 MHz;

(4) Hand-held portable transmitters are not required to comply with the automatic reduction of carrier power in (g)(2) of this section; and

(5) Transmitters dedicated for use on public correspondence duplex channels as additional equipment to a VHF ship station in the Great Lakes which meet all pertinent rules in this part are not required to reduce their carrier power to one watt.

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[4] For passenger ships 5000 gross tons and over—1kW.

[5] For passenger ships 5,000 gross tons and over 3kW.

[6] Reducible to 1 watt or less, except for transmitters limited to public correspondence channels and used in an automated system.

[13] The frequencies 156.775 and 156.825 MHz are available for navigation-related port operations or ship movement only, and all precautions must be taken to avoid harmful interference to channel 16. Transmitter output power is limited to 1 watt for ship stations, and 10 watts for coast stations.

[7] [Reserved]

[8] Certification based on a carrier power of 4 watts with transmitter connected to a dummy load of matching impedance. The effective radiated power must not exceed 2 watts.

[9] See paragraph (k) of this section.

[10] See subpart V of this part.

[11] See paragraph (l) of this section.

[12] The frequencies 156.375 MHz and 156.650 MHz are primarily intership frequencies. When authorized for coast stations on a secondary basis, the normal output power must not exceed 1 watt and the maximum output power must not exceed 10 watts.

(h) Coast stations in an AMTS may radiate as follows, subject to the condition that no harmful interference will be caused to television reception except that TV services authorized subsequent to the filing of the AMTS station application will not be protected.

(1) When located more than 169 kilometers (105 miles) from the antenna of a Channel 13 TV station and more than 129 kilometers (80 miles) from the antenna of a channel 10 station, the ERP of coast stations having an antenna height of 61 meters (200 feet) or less above ground must not exceed 1000 watts.

(2) Coast stations located less than 169 kilometers (105 miles) from a channel 13 TV station, or less than 129 kilometers (80 miles) from a channel 10 TV station, or when using a transmitting antenna height above ground greater than 61 meters (200 feet), must submit a plan to limit interference to TV reception, unless the station's predicted interference contour is fully encompassed by the composite interference contour of the system's existing stations, or the station's predicted interference contour extends the system's composite interference contour over water only (disregarding uninhabited islands). The plan must include:

(i) A description of the interference contour with indentification of the method used to determine this contour; and

(ii) A statement concerning the number of residences within the interference contour. The interference contour includes only areas inside the TV grade B contour with the latter determined assuming maximum permissible TV antenna height and power for broadcast stations and the actual facility parameters for translators and low power TV stations. See part 73, subpart E of this chapter for further information on TV grade B contour determination.

(3) When located as described in paragraph (h)(2) of this section, the coast station (or stations affecting the same TV Grade B contour) will be authorized if the applicant's plan has limited the interference contour(s) to fewer than 100 residences or if the applicant:

(i) Shows that the proposed site is the only suitable location (which, at the application stage, requires a showing that the proposed site is especially well-suited to provide the proposed service);

(ii) Develops a plan to control any interference caused to TV reception within the Grade B contour from its operations; and

(iii) Agrees to make such adjustments in the TV receivers affected as may be necessary to eliminate interference caused by its operations.

(4) The applicant must eliminate any interference caused by its operation to TV reception within the Grade B contour that might develop within 90 days of the time it is notified in writing by the Commission. If this interference is not removed within the 90-day period, operation of the coast station must be discontinued. The licensee is expected to help resolve all complaints of interference, whether inside or outside the Grade B contour.

(5) The transmitter power, as measured at the input terminals to the station antenna, must be 50 watts or less.

(i) A ship station must have a transmitter output not exceeding 25 watts and an ERP not exceeding 18 watts. The maximum transmitter output power is permitted to be increased to 50 watts under the following conditions:

(1) Increases exceeding 25 watts are made only by radio command from the controlling coast stations; and

(2) The application for an equipment authorization demonstrates that the transmitter output power is 25 watts or less when external radio commands are not present.

(j) A ship installation with a transmitter output power exceeding 25 watts under the conditions of paragraph (i) of this section is exempted from the limitation of 18 watts ERP when operating in specific geographical areas identified in a plan for the use of higher power.

(k) Within the 1626.5–1646.5 MHz band the maximum e.i.r.p by a ship earth station in any direction in the horizontal plane or in the direction of the space station must not exceed +40 dB relative to one watt in any 4 kHz band in the main beam, except upon a satisfactory showing of need for greater power, in which case a maximum of +55

dB relative to one watt may be authorized.

(l) For operational fixed stations using frequencies in the 72–76 MHz band and for other classes of stations operating above 162.025 MHz, the transmitter power must be specified in the station authorization. Frequencies in the 72–76 MHz band are listed in § 80.381. The operational requirements for 72–76 MHz are contained in subpart L of this part.

(m) For radiodetermination transmitters using A1D, A2D, F1D, F2D, G1D and G2D emissions on 154.585 MHz, 159.480 MHz, 160.725 MHz, 160.785 MHz, 454.000 MHz and 459.000 MHz the mean output power of the unmodulated carrier must not exceed 25 watts.

(n) For radiodetermination stations operating above 2400 MHz the output power must be as follows:

(1) For radar stations that use F3N emission the mean output power must not exceed 200 milliwatts;

(2) For search and rescue stations the output power must be at least 400 milliwatts peak e.i.r.p.

(3) For all other transponder stations the output power must not exceed 20 watts peak e.i.r.p. Licensees of non-selectable transponder coast stations operating in the 2920–3100 MHz and 9320–9500 MHz bands must notify in writing the USCG District Commander of any incremental increase of their station's output power above 5 watts peak e.i.r.p.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7419, Mar. 11, 1987; 52 FR 35244, Sept. 18, 1987; 54 FR 40058, Sept. 29, 1989; 54 FR 49994, Dec. 4, 1989; 56 FR 3783, Jan. 31, 1991; 59 FR 35269, July 11, 1994; 63 FR 36606, July 7, 1998; 65 FR 77824, Dec. 13, 2000; 67 FR 48564, July 25, 2002; 68 FR 46965, Aug. 7, 2003; 69 FR 64673, Nov. 8, 2004]

§ 80.217 Suppression of interference aboard ships.

(a) A voluntarily equipped ship station receiver must not cause harmful interference to any receiver required by statute or treaty.

(b) The electromagnetic field from receivers required by statute or treaty must not exceed the following value at a distance over sea water of one nautical mile from the receiver:

Frequency of interfering emissions	Field intensity in microvolts per meter
Below 30 MHz	0.1
30 to 100 MHz	.3
100 to 300 MHz	1.0
Over 300 MHz	3.0

or

Deliver not more than the following amounts of power, to an artificial antenna having electrical characteristics equivalent to those of the average receiving antenna(s) use on shipboard:

Frequency of interfering emissions	Power to artificial antenna in microwatts
Below 30 MHz	400
30 to 100 MHz	4,000
100 to 300 MHz	40,000
Over 300 MHz	400,000

§ 80.219 Special requirements for narrow-band direct-printing (NB–DP) equipment.

NB–DP and data transmission equipment installed in ship and coast stations before October 1, 1990, that operates on the frequencies in the 4,000–27,500 kHz bands must be capable of operation in accordance with the technical requirements of either ITU–R M.476–5 or ITU–R M.625–3 (both incorporated by reference, *see* § 80.7), and may be used indefinitely. Equipment installed on or after October 1, 1990, must be capable of operation in accordance with the technical requirements of ITU–R M.625–3, 1995 (incorporated by reference, see § 80.7). NB–DP and data transmission equipment are additionally permitted to utilize any modulation, so long as emissions are within the limits set forth in § 80.211(f) and the equipment is also capable of operation in accordance with ITU–R M.625–3 (incorporated by reference, see § 80.7).

[76 FR 67611, Nov. 2, 2011]

§ 80.221 Special requirements for automatically generating the radiotelephone alarm signal.

(a) Each device for automatically generating the radiotelephone alarm signal must be capable of being disabled to permit the immediate transmission of a distress call and message.

(b) The device must comply with the following requirements:

(1) The frequency tolerance of each tone must be ±1.5 percent;

(2) The duration tolerance of each tone must be ±50 milliseconds;

(3) The interval between successive tones must not exceed 50 milliseconds; and

(4) The amplitude ratio of the tones must be flat within 1.6 dB.

(c) Devices installed on or after January 1, 1983, must comply with the following requirements:

(1) The frequency tolerance of each tone must be ±1.5 percent;

(2) The duration tolerance of each tone must be ±10 milliseconds;

(3) The interval between successive tones must not exceed 4 milliseconds;

(4) The amplitude ratio of the tones must be flat within 1.6 dB;

(5) The output of the device must be sufficient to modulate the associated transmitter for H2B emission to at least 70 percent, and for J2B emission to within 3 dB of the rated peak envelope power;

(6) Light from the device must not interfere with the safe navigation of the ship;

(7) After activation the device must automatically generate the radiotelephone alarm signal for not less than 30 seconds and not more than 60 seconds unless manually interrupted;

(8) After generating the radiotelephone alarm signal or after manual interruption the device must be immediately ready to repeat the signal;

(9) The transmitter must be automatically switched from the stand-by condition to the transmit condition at the start and return to the stand-by condition at the conclusion of the radiotelephone alarm signal.

(d) Any device used by a station to automatically generate the radiotelephone alarm signal must be certificated by the Commission.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40059, Sept. 29, 1989; 63 FR 36606, July 7, 1998]

§ 80.223 Special requirements for survival craft stations.

(a) Survival craft stations capable of transmitting on:

(1) 2182 kHz must be able to operate with A3E or H3E and J2B and J3E emissions;

(2) 121.500 MHz must be able to operate with A3E or A3N emission.

(b) Survival craft stations must be able to receive the frequency and types of emission which the transmitter is capable of using.

(c) Any EPIRB carried as part of a survival craft must comply with the specific technical and performance requirements for its class contained in subpart V of this chapter.

[68 FR 46966, Aug. 7, 2003, as amended at 73 FR 4482, Jan. 25, 2008]

§ 80.225 Requirements for selective calling equipment.

This section specifies the requirements for voluntary digital selective calling (DSC) equipment and selective calling equipment installed in ship and coast stations, and incorporates by reference ITU–R M.476–5; ITU–R M.493–13; ITU–R M.541–9; ITU–R M.625–3; RTCM Paper 56–95/SC101–STD; and IEC 62238 (all incorporated by reference, *see* § 80.7).

(a) The requirements for DSC equipment voluntarily installed in coast or ships stations are as follows:

(1) Prior to March 25, 2009, DSC equipment must meet the requirements of the following standards in order to be approved for use:

(i) RTCM Paper 56–95/SC101–STD and ITU–R M.493–13 (both incorporated by reference, *see* § 80.7) (including only equipment classes A, B, D, and E); or

(ii) ITU–R M.493–13 and, in the case of Class D DSC equipment only, IEC 62238 (both incorporated by reference, *see* § 80.7).

(2) Beginning March 25, 2009, the Commission will not accept new applications (but will continue to process then-pending applications) for certification of non-portable DSC equipment that does not meet the requirements of ITU–R M.493–13 and, in the case of Class D DSC equipment only, IEC 62238 (both incorporated by reference, *see* § 80.7).

(3) Beginning March 25, 2012, the Commission will not accept new applications (but will continue to process then-pending applications) for certification of handheld, portable DSC

equipment that does not meet the requirements of ITU–R M.493–13 and, in the case of Class D DSC equipment only, IEC 62238 (both incorporated by reference, *see* § 80.7).

(4) The manufacture, importation, sale or installation of non-portable DSC equipment that does not comply with either of the standards referenced in paragraph (a)(2) of this section is prohibited beginning March 25, 2011.

(5) The manufacture, importation, or sale of handheld, portable DSC equipment that does not comply with either of the standards referenced in paragraph (a)(3) of this section is prohibited beginning March 25, 2015.

(6) Approved DSC equipment that has been manufactured, sold, and installed in conformity with the requirements of this section may be used indefinitely.

(b) Manufacturers of Class C DSC equipment to be used on United States vessels must affix a clearly discernible permanent plate or label visible from the operating controls containing the following:

WARNING. This equipment is designed to generate a digital maritime distress and safety signal to facilitate search and rescue. To be effective as a safety device, this equipment must be used only within communication range of a shore-based VHF marine channel 70 distress and safety watch system. The range of the signal may vary but under normal conditions should be approximately 20 nautical miles.

(c) Selective calling equipment, other than that designed in accordance with paragraph (a) of this section, is authorized as follows:

(1) Equipment used in conjunction with the Automated Maritime Telecommunications System (AMTS) in the band 216–220 MHz,

(2) Equipment used to perform a selective calling function during narrowband direct-printing (NB–DP) operations in accordance with ITU–R M.476–5 or ITU–R M.625–3 or ITU–R M.493–13 (all incorporated by reference, *see* § 80.7), and

(3) Equipment functioning under the provisions of § 80.207(a) includes the brief use of radiotelegraphy, including keying only the modulating audio frequency, tone signals, and other signalling devices to establish or maintain communications provided that:

(i) These signalling techniques are not used on frequencies designated for general purpose digital selective calling (DSC) and distress and safety DSC calling as listed in § 80.359;

(ii) The authorized radiotelephone emission bandwidth is not exceeded;

(iii) Documentation of selective calling protocols must be available to the general public; and,

(iv) Harmful interference is not caused to stations operating in accordance with the International Radio Regulations.

[54 FR 10009, Mar. 9, 1989, as amended at 62 FR 40306, July 28, 1997; 68 FR 46966, Aug. 7, 2003; 73 FR 4482, Jan. 25, 2008; 76 FR 67611, Nov. 2, 2011]

§ 80.227 Special requirements for protection from RF radiation.

As part of the information provided with transmitters for ship earth stations, manufacturers of each such unit must include installation and operating instructions to help prevent human exposure to radiofrequency (RF) radiation in excess of the RF exposure guidelines specified in § 1.1307(b) of the Commission's Rules.

[53 FR 28225, July 27, 1988]

§ 80.229 Special requirements for automatic link establishment (ALE).

Brief signalling for the purposes of measuring the quality of a radio channel and thereafter establishing communication shall be permitted within the 2 MHz–30 MHz band. Public coast stations providing high seas service are authorized by rule to use such signalling under the following conditions:

(a) The transmitter power shall not exceed 100 W ERP;

(b) Transmissions must sweep linearly in frequency at a rate of at least 60 kHz per second, occupying any 3 kHz bandwidth for less than 50 milliseconds;

(c) The transmitter shall scan the band no more than four times per hour;

(d) Transmissions within 6 kHz of the following protected frequencies and frequency bands must not exceed 10 μW peak ERP:

(1) Protected frequencies (kHz)

2091.0	4188.0	6312.0	12290.0	16420.0
2174.5	4207.5	8257.0	12392.0	16522.0
2182.0	5000.0	8291.0	12520.0	16695.0

2187.5	5167.5	8357.5	12563.0	16750.0
2500.0	5680.0	8364.0	12577.0	16804.5
3023.0	6215.0	8375.0	15000.0	20000.0
4000.0	6268.0	8414.5	16000.0	25000.0
4177.5	6282.0	10000.0		

(2) Protected bands (kHz)

4125.0–4128.0
8376.25–8386.75
13360.0–13410.0
25500.0–25670.0

(e) The instantaneous signal, which refers to the peak power that would be measured with the frequency sweep stopped, along with spurious emissions generated from the sweeping signal, must be attenuated below the peak carrier power (in watts) as follows:

(1) On any frequency more than 5 Hz from the instantaneous carrier frequency, at least 3 dB;

(2) On any frequency more than 250 Hz from the instantaneous carrier frequency, at least 40 dB; and

(3) On any frequency more than 7.5 kHz from the instantaneous carrier frequency, at least 43 + $10\log_{10}$ (peak power in watts) db.

[62 FR 40307, July 28, 1997]

§ 80.231 Technical Requirements for Class B Automatic Identification System (AIS) equipment.

(a) Class B Automatic Identification System (AIS) equipment must meet the technical requirements of IEC 62287–1 (incorporated by reference, *see* § 80.7).

(b) In addition to the labels or other identifying information required under §§ 2.925 and 2.926 of this chapter, each Class B AIS device shall include a conspicuous label that includes: Instructions on how to accurately enter into the device and confirm static data pertaining to the vessel in which the device is or will be installed; and the following statement: ''WARNING: It is a violation of the rules of the Federal Communications Commission to input an MMSI that has not been properly assigned to the end user, or to otherwise input any inaccurate data in this device.'' Instructions on how to accurately enter and confirm static data in the device shall also be included in the user's manual for the device. The entry of static data into a Class B AIS device shall be performed by the vendor of the device or by an appropriately qualified person in the business of installing marine communications equipment on board vessels. In no event shall the entry of static data into a Class B AIS device be performed by the user of the device or the licensee of a ship station using the device. Knowingly programming a Class B AIS device with inaccurate static data, or causing a Class B AIS device to be programmed with inaccurate static data, is prohibited.

(c) Prior to submitting a certification application for a Class B AIS device, the following information must be submitted in duplicate to the Commandant (CG–521), U.S. Coast Guard, 2100 2nd Street, SW., Washington, DC 20593–0001:

(1) The name of the manufacturer or grantee and the model number of the AIS device; and

(2) Copies of the test report and test data obtained from the test facility showing that the device complies with the environmental and operational requirements identified in IEC 62287–1.

(d) After reviewing the information described in paragraph (c) of this section, the U.S. Coast Guard will issue a letter stating whether the AIS device satisfies all of the requirements specified in IEC 62287–1.

(e) A certification application for an AIS device submitted to the Commission must contain a copy of the U.S. Coast Guard letter stating that the device satisfies all of the requirements specified in IEC 62287–1, a copy of the technical test data, and the instruction manual(s).

[74 FR 5124, Jan. 29, 2009, as amended at 76 FR 67612, Nov. 2, 2011]

Subpart F—Equipment Authorization for Compulsory Ships

§ 80.251 Scope.

(a) This subpart gives the general technical requirements for certification of equipment used on compulsory ships. Such equipment includes automatic-alarm-signal keying devices, survival craft radio equipment, radar equipment and Ship Security Alert System (SSAS) equipment.

(b) The equipment described in this subpart must be certificated.

(c) The term *transmitter* means the transmitter unit and all auxiliary equipment necessary to make this unit operate as a main or emergency transmitter in a ship station at sea. Each separate motor-generator, rectifier, or other unit required to convert the ship primary power to the phase, frequency, or voltage necessary to energize the transmitter unit is considered a component of the transmitter.

(d) *Average ship station antenna* means an actual antenna installed on board ship having a capacitance of 750 picofarads and an effective resistance of 4 ohms at a frequency of 500 kHz, or an artificial antenna having the same electrical characteristics.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 36606, July 7, 1998; 68 FR 46966, Aug. 7, 2003; 73 FR 4483, Jan. 25, 2008; 76 FR 67612, Nov. 2, 2011]

§ 80.268 Technical requirements for radiotelephone installation.

All radiotelephone installations in radiotelegraph equipped vessels must meet the following conditions.

(a) The radiotelephone transmitter must be capable of transmission of A3E or H3E emission on 2182 kHz and must be capable of transmitting clearly perceptible signals from ship to ship during daytime, under normal conditions over a range of 150 nautical miles when used with an antenna system in accordance with paragraph (c) of this section. The transmitter must:

(1) Have a duty cycle which allows for transmission of the radiotelephone alarm signal described in § 80.221.

(2) Provide 25 watts carrier power for A3E emission or 60 watts peak power on H3E emission into an artificial antenna consisting of 10 ohms resistance and 200 picofarads capacitance or 50 ohms nominal impedance to demonstrate compliance with the 150 nautical mile range requirement.

(3) Have a visual indication whenever the transmitter is supplying power to the antenna.

(4) Have a two-tone alarm signal generator that meets § 80.221.

(5) This transmitter may be contained in the same enclosure as the receiver required by paragraph (b) of this section. These transmitters may have the capability to transmit J2D or J3E transmissions.

(b)(1) The radiotelephone receiver must receive A3E and H3E emissions when connected to the antenna system specified in paragraph (c) this section and must be preset to 2182 kHz. The receiver must additionally:

(i) Provide an audio output of 50 milliwatts to a loudspeaker when the RF input is 50 microvolts. The 50 microvolt input signal must be modulated 30 percent at 400 Hertz and provide at least a 6 dB signal-to-noise ratio when measured in the rated audio bandwidth.

(ii) Be equipped with one or more loudspeakers capable of being used to maintain a watch on 2182 kHz at the principal operating position or in the room from which the vessel is normally steered.

(2) This receiver may be contained in the same enclosure as the transmitter required by paragraph (a) of this section. These receivers may have the capability to receive J2D or J3E transmissions.

(c) The antenna system must be as nondirectional and efficient as is practicable for the transmission and reception of radio ground waves over seawater. The installation and construction of the required antenna must ensure, insofar as is practicable, proper operation in time of emergency. If the required antenna is suspended between masts or other supports subject to whipping, a safety link must be installed which under heavy stress will reduce breakage of the antenna, the halyards, or any other supporting elements.

(d) The radiotelephone installation must be provided with a device for permitting changeover from transmission to reception and vice versa without manual switching.

(e) An artificial antenna must be provided to permit weekly checks, without causing interference, of the automatic device for generating the radiotelephone alarm signal on frequencies other than the radiotelephone distress frequency.

(f) The radiotelephone installation must be located in the radiotelegraph operating room or in the room from which the ship is normally steered.

(g) Demonstration of the radiotelephone installation may be required by Commission representatives to show compliance with applicable regulations.

(h) The radiotelephone installation must be protected from excessive currents and voltages.

(i) The radiotelephone installation must be maintained in an efficient condition.

[51 FR 31213, Sept. 2, 1986. Redesignated and amended at 68 FR 46973, Aug. 7, 2003; 73 FR 4483, Jan. 25, 2008]

§ 80.271 Technical requirements for portable survival craft radiotelephone transceivers.

(a) Portable survival craft radiotelephone transceivers must comply with the following:

(1) The transceivers must receive and transmit either on 457.525 MHz or on 156.800 MHz;

(2) The receiver must comply with the requirements in part 15, subpart B of this chapter and must have a sensitivity of not more than 2 microvolts;

(3) The effective radiated power of the transmitter must be at least 0.1 watt;

(4) The transceivers must be battery powered and operate for at least four hours with a transmit to receive ratio of 1:9 with no significant adverse effect upon the performance of the device;

(5) The transceivers must have a permanently attached waterproof label with the statement ''Complies with the FCC requirements for survival craft two-way radiotelephone equipment''; and

(6) The antenna must be permanently attached to the device or its removal must require the use of a special tool.

(b) Portable radiotelephone transceivers that are already certificated may be used to satisfy the survival craft radiotelephone requirement until October 1, 1993, provided the device meets the technical requirements in paragraphs (a) (1) through (3) of this section.

(c) Survival craft radiotelephone equipment installed after October 1, 1988, must be certificated to meet the requirements of this section.

(d) After October 1, 1993, all portable radiotelephone transceivers that are used to satisfy the survival craft radiotelephone requirement must have been certificated to meet the requirements of this section.

(e) Portable radiotelephone transceivers which are certified to meet the requirements of this section must be identified by an appropriate note in the Commission's database.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 36607, July 7, 1998; 73 FR 4483, Jan. 25, 2008; 76 FR 67612, Nov. 2, 2011]

§ 80.273 Radar standards.

(a) Radar installations on board ships that are required by the Safety Convention or the U.S. Coast Guard to be equipped with radar must comply with the following standards (all incorporated by reference, *see* § 80.7):

(1) IEC 60945;

(2) IEC 62388;

(3) IMO Resolution A.694(17), as revised by IMO Resolution MSC.149(77);

(4) IMO Resolution MSC.191(79);

(5) IMO Resolution MSC.192(79); and

(6) ITU–R M.1177–3.

(b) Radar equipment installed on voluntarily equipped vessels must comply with IEC 62252 (incorporated by reference, *see* § 80.7).

(c) For any ship of 10,000 tons gross tonnage and upwards or that is otherwise required to be equipped with two radar systems, each of the two radar systems must be capable of operating independently and must comply with the specifications, standards and general requirements set forth on paragraph (b) of this section. One of the systems must provide a display with an effective diameter of not less than 340 millimeters (13.4 inches), (16-inch cathode ray tube). The other system must provide a display with an effective diameter of not less than 250 millimeters (9.8 inches), (12-inch cathode ray tube).

(d) Radar installed before March 25, 2008 must meet and be maintained to comply with the Commission's regulations in effect for the equipment on the date of its installation.

[73 FR 4483, Jan. 25, 2008, as amended at 76 FR 67612, Nov. 2, 2011]

§ 80.275 Technical Requirements for Class A Automatic Identification System (AIS) equipment.

(a) Prior to submitting a certification application for a Class A AIS device, the following information must be submitted in duplicate to the Commandant (G–PSE), U.S. Coast Guard, 2100 2nd Street, SW., Washington, DC 20593–0001:

(1) The name of the manufacturer or grantee and the model number of the AIS device;

(2) Copies of the test report and test data obtained from the test facility showing that the device complies with the environmental and operational requirements identified in § 80.1101.

(b) After reviewing the information described in paragraph (a) of this section, the U.S. Coast Guard will issue a letter stating whether the AIS device satisfies all of the requirements specified in § 80.1101.

(c) A certification application for an AIS device submitted to the Commission must contain a copy of the U.S. Coast Guard letter stating that the device satisfies all of the requirements specified in § 80.1101, a copy of the technical test data, and the instruction manual(s).

[69 FR 64673, Nov. 8, 2004, as amended at 74 FR 5125, Jan. 29, 2009]

§ 80.277 Ship Security Alert System (SSAS).

(a) Vessels equipped with a Ship Security Alert System pursuant to the Safety Convention or 33 CFR 101.310 may utilize:

(1) Equipment that complies with RTCM 11020.1 (incorporated by reference, *see* § 80.7); or

(2) INMARSAT D+ equipment; or

(3) Equipment that complies with the technical specifications found in this subpart.

(b) [Reserved]

[73 FR 4484, Jan. 25, 2008, as amended at 76 FR 67612, Nov. 2, 2011]

§ 80.288 Direction finding and homing equipment.

Each compulsory ship of 1,600 gross tons or over whose keel was laid:

(a) *Prior to May 25, 1980*, must be equipped with radio direction finding apparatus in operating condition and approved by the Commission during an inspection.

(b) *On or after May 25, 1980*, must be equipped with radio direction finding apparatus having a homing capability in accordance with § 80.824.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 29960, June 1, 1998. Redesignated at 68 FR 46973, Aug. 7, 2003]

§ 80.289 Requirements for radio direction finder.

(a) The radio direction finding apparatus must:

(1) Be capable of receiving signals A1A, A2B and R2B emission, on each frequency within the band 285–515 kHz assigned by the Radio Regulations for distress and direction finding and for maritime radio beacons, and be calibrated to take bearings on such signals from which the true bearing and direction may be determined; and

(2) Possess a sensitivity, sufficient to permit the taking of bearings on a signal having a field strength of 50 microvolts per meter.

(b) The calibration of the direction finder must be verified by check bearings or by a further calibration whenever any changes are made in the physical or electrical characteristics or the position of any antennas, and whenever any changes are made in the position of any deck structures which might affect the accuracy of the direction finder. In addition, the calibration must be verified by check bearings at yearly intervals. A record of the calibrations, and of the check bearings made of their accuracy and the accuracy of the check bearings must be kept on board the ship for a period of not less than 1 year.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 29660, June 1, 1998. Redesignated at 68 FR 46973, Aug. 7, 2003]

§ 80.290 Auxiliary receiving antenna.

An auxiliary receiving antenna must be provided when necessary to avoid unauthorized interruption or reduced efficiency of the required watch because the normal receiving antenna is not available because a radio direction finder on board the vessel is operated.

[51 FR 31213, Sept. 2, 1986. Redesignated at 68 FR 46973, Aug. 7, 2003]

§ 80.291 Installation of direction finder.

(a) The direction finder must be located to minimize interference from noise.

(b) The direction finder antenna system must be erected so that the determination of bearings will not be hindered by the proximity of other antennas, cranes, wire halyards, or large metal objects.

§ 80.292 Contingent acceptance of direction finder calibration.

When the required calibration can not be made before departure from a harbor or port for a voyage in the open sea, the direction finder may be tentatively approved on condition that the master certifies in writing that the direction finder will be calibrated by a competent technician.

[63 FR 29660, June 1, 1998. Redesignated at 68 FR 46973, Aug. 7, 2003]

§ 80.293 Check bearings by authorized ship personnel.

The requirement for calibration by check bearings is met if:

(a) The required verification by check bearings are made not more than 90 days prior to the date of the annual detailed inspection of the radiotelegraph station;

(b) The verification consists of a comparison of simultaneous visual and radio direction finder bearings. At least one comparison bearing must be taken in each quadrant, within plus or minus 20 degrees from the following bearings relative to the ship's heading: 45 degrees; 135 degrees; 225 degrees; 315 degrees;

(c) The verification shows the visual bearing relative to the ship's heading and the difference between the visual and radio direction finder bearing, and the date each check bearing is taken.

[51 FR 31213, Sept. 2, 1986. Redesignated at 68 FR 46973, Aug. 7, 2003]

Subpart G—Safety Watch Requirements and Procedures

COAST STATION SAFETY WATCHES

§ 80.301 Watch requirements.

(a) Each public coast station licensed to operate in the band 1605–3500 kHz must monitor such frequency(s) as are used for working or, at the licensee's discretion, maintain a watch on 2182 kHz.

(b) Except for distress, urgency or safety messages, coast stations must not transmit on 2182 kHz during the silence periods for three minutes twice each hour beginning at x h.00 and x h.30 Coordinated Universal Time (UTC).

(c) Each public coast station must provide assistance for distress communications when requested by the Coast Guard.

[51 FR 31213, Sept. 2, 1986, as amended at 69 FR 64673, Nov. 8, 2004]

§ 80.302 Notice of discontinuance, reduction, or impairment of service involving a distress watch.

(a) When changes occur in the operation of a public coast station which include discontinuance, relocation, reduction or suspension of a watch required to be maintained on 2182 kHz or 156.800 MHz, notification must be made by the licensee to the nearest district office of the U.S. Coast Guard as soon as practicable. The notification must include the estimated or known resumption time of the watch.

(b) [Reserved]

[68 FR 46967, Aug. 7, 2003, as amended at 69 FR 64673, Nov. 8, 2004]

§ 80.303 Watch on 156.800 MHz (Channel 16).

(a) During its hours of operation, each coast station operating in the 156–162 MHz band and serving rivers, bays and inland lakes except the Great Lakes, must maintain a safety watch on the frequency 156.800 MHz except when transmitting on 156.800 MHz.

(b) A coast station is exempt from compliance with the watch requirement when Federal, State, or Local Government stations maintain a watch on 156.800 MHz over 95% of the coast station's service area. Each licensee

exempted by rule must notify the nearest district office of the U.S. Coast Guard at least thirty days prior to discontinuing the watch, or in the case of new stations, at least thirty days prior to commencing service. The Coast Guard may require any coast station to maintain the watch temporarily or permanently. The Coast Guard may also require any coast station to remain capable of either immediately resuming the watch or providing the Coast Guard direct dial-up access to the necessary 156.800 MHz transceiver at no charge so that the Coast Guard can maintain the watch.

(c) If the government station(s) providing the 156.800 MHz watch over the service area of an exempt station temporarily discontinues that watch, the exempt coast station upon receiving notice of this condition must maintain the watch on 156.800 HMz during the discontinuance. Automated maritime communications systems' compliance with this requirement is limited to the use of existing facilities.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 63 FR 40063, July 27, 1998]

SHIP STATION SAFETY WATCHES

§ 80.304 Watch requirement during silence periods.

Each ship station operating on telephony on frequencies in the band 1605–3500 kHz must maintain a watch on the frequency 2182 kHz. This watch must be maintained at least twice each hour for 3 minutes commencing at x h.00 and x h.30 Coordinated Universal Time (UTC) using either a loudspeaker or headphone. Except for distress, urgency or safety messages, ship stations must not transmit during the silence periods on 2182 kHz.

[69 FR 64673, Nov. 8, 2004]

§ 80.305 Watch requirements of the Communications Act and the Safety Convention.

(a) Each ship of the United States which is equipped with a radiotelegraph station for compliance with part II of title III of the Communications Act or chapter IV of the Safety Convention must:

(1) If it is not carrying MF-DSC radio equipment, keep a continuous and efficient watch on the radiotelephone distress frequency 2182 kHz from the principal radio operating position or the room from which the vessel is normally steered while being navigated in the open sea outside a harbor or port.

(2) Keep a continuous and efficient watch on the VHF distress frequency 156.800 MHz from the room from which the vessel is normally steered while in the open sea outside a harbor or port. The watch must be maintained by a designated member of the crew who may perform other duties, relating to the operation or navigation of the vessel, provided such other duties do not interfere with the effectiveness of the watch. Use of a properly adjusted squelch or brief interruptions due to other nearby VHF transmissions are not considered to adversely affect the continuity or efficiency of the required watch on the VHF distress frequency. This watch need not be maintained by vessels subject to the Bridge-to-Bridge Act and participating in a Vessel Traffic Services (VTS) system as required or recommended by the U.S. Coast Guard, when an efficient listening watch is maintained on both the bridge-to-bridge frequency and a separate assigned VTS frequency.

(b) Each cargo ship of the United States which is equipped with a radiotelephone station for compliance with part II of title III of the Communications Act or chapter IV of the Safety Convention must while being navigated outside of a harbor or port:

(1) If it is not carrying MF–DSC radio equipment, keep a continuous watch on 2182 kHz in the room from which the vessel is normally steered while at sea, whenever such station is not being used for authorized traffic. Such watch must be maintained by at least one officer or crewmember who may perform other duties relating to the operation or navigation of the vessel, provided such other duties do not interfere with the watch.

(2) Keep a continuous watch on 156.800 MHz from the room from which the vessel is normally steered. The watch must be maintained by a crewmember who may perform other duties, relating to the operation or navigation

of the vessel, provided such other duties do not interfere with the watch. Use of properly adjusted squelch of brief interruptions due to other nearby VHF transmissions are not considered to adversely affect the watch. This watch need not be maintained by vessels subject to the Bridge-to-Bridge Act and participating in a Vessel Traffic Services (VTS) system when a watch is maintained on both the bridge-to-bridge frequency and a VTS frequency.

(c) Each vessel of the United States transporting more than six passengers for hire, which is equipped with a radiotelephone station for compliance with 47 U.S.C. 381–386 but which is not carrying MF-DSC radio equipment, must, while being navigated in the open sea or any tidewater within the jurisdiction of the United States adjacent or contiguous to the open sea, keep a continuous watch on 2182 kHz while the vessel is beyond VHF communication range of the nearest VHF coast station, whenever the radiotelephone station is not being used for authorized traffic. A VHF watch must be kept on 156.800 MHz whenever such station is not being used for authorized traffic. The VHF watch must be maintained at the vessel's steering station actually in use by the qualified operator as defined by § 80.157 or by a crewmember who may perform other duties relating to the operation or navigation of the vessel, provided such other duties do not interfere with the watch. The use of a properly adjusted squelch is not considered to adversely affect the watch. The VHF watch need not be maintained by vessels subject to the Bridge-to-Bridge Act and participating in a Vessel Traffic Services (VTS) system when an efficient listening watch is maintained on both the bridge-to-bridge frequency and a VTS frequency.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46967, Aug. 7, 2003; 69 FR 64673, Nov. 8, 2004; 73 FR 4484, Jan. 25, 2008; 76 FR 67612, Nov. 2, 2011]

§ 80.307 Compulsory use of radiotelegraph auto alarm.

The radiotelegraph auto alarm required on a cargo ship subject to the radiotelegraph provisions of part II of title III of the Communications Act or the Safety Convention must be in operation, connected to the main antenna and adjusted for optimum efficiency at all times while the ship is being navigated in the open sea when a radio officer is not listening on the frequency 500 kHz, except under the circumstances as set forth in § 80.306(b).

§ 80.308 Watch required by the Great Lakes Radio Agreement.

(a) Each ship of the United States that is equipped with a radiotelephone station for compliance with the Great Lakes Radio Agreement must when underway keep a watch on:

(1) 156.800 MHz on board a vessel 20 meters (65 feet) and over in length, a vessel engaged in towing (See § 80.951(b)), or a vessel carrying more than 6 passengers for hire. This watch must be maintained whenever the station is not being used for authorized traffic. However, a watch on 156.800 MHz need not be maintained by a vessel maintaining a watch on the bridge-to-bridge frequency 156.650 MHz *and* participating in a Vessel Traffic Services (VTS) system and maintaining a watch on the specified VTS frequency.

(2) 156.650 MHz on board a vessel 38 meters (124 feet) and over in length, a vessel engaged in towing (See § 80.951(b)), or a vessel carrying more than six passengers for hire. This watch must be maintained continuously and effectively. Sequential monitoring is not sufficient. Portable VHF equipment may be used to meet this requirement. Vessels are exempted from this requirement while transiting the St. Lawrence Seaway and complying with the Joint Regulations of the St. Lawrence Seaway Authority and St. Lawrence Seaway Development Corporation between the lower exit of St. Lambert Lock at Montreal and Crossover Island, New York and in the Welland Canal and approaches between Calling in Point No. 15 and No. 16.

(b) The watch must be maintained by the master, or person designated by the master, who may perform other duties provided they do not interfere with the effectiveness of the watch.

[53 FR 17052, May 13, 1988]

§ 80.309 Watch required by the Bridge-to-Bridge Act.

In addition to the watch requirement contained in § 80.148, all vessels subject to the Bridge-to-Bridge Act must keep a watch on the designated navigational frequency. The watch must be maintained by the master or person in charge of the vessel or the person designated by the master or person in charge to pilot or direct the movement of the vessel. The person standing watch may perform other duties provided such other duties do not interfere with the watch.

[51 FR 31213, Sept. 2, 1986, as amended at 57 FR 61012, Dec. 23, 1992]

§ 80.310 Watch required by voluntary vessels.

Voluntary vessels not equipped with DSC must maintain a watch on 2182 kHz and on 156.800 MHz (Channel 16) whenever the vessel is underway and the radio is not being used to communicate. Noncommercial vessels, such as recreational boats, may alternatively maintain a watch on 156.450 MHz (Channel 9) in lieu of VHF Channel 16 for call and reply purposes. Voluntary vessels equipped with VHF–DSC equipment must maintain a watch on 2182 kHz and on either 156.525 MHz (Channel 70) or VHF Channel 16 aurally whenever the vessel is underway and the radio is not being used to communicate. Voluntary vessels equipped with MF–HF DSC equipment must have the radio turned on and set to an appropriate DSC distress calling channel or one of the radiotelephone distress channels whenever the vessel is underway and the radio is not being used to communicate. Voluntary vessels equipped with a GMDSS-approved Inmarsat system must have the unit turned on and set to receive calls whenever the vessel is underway and the radio is not being used to communicate.

[76 FR 67612, Nov. 2, 2011]

DISTRESS, ALARM, URGENCY AND SAFETY PROCEDURES

§ 80.311 Authority for distress transmission.

A mobile station in distress may use any means at its disposal to attract attention, make known its position, and obtain help. A distress call and message, however, must be transmitted only on the authority of the master or person responsible for the mobile station. No person shall knowingly transmit, or cause to be transmitted, any false or fraudulent signal of distress or related communication.

§ 80.312 Priority of distress transmissions.

The distress call has absolute priority over all other transmissions. All stations which hear it must immediately cease any transmission capable of interfering with the distress traffic and must continue to listen on the frequency used for the emission of the distress call. This call must not be addressed to a particular station. Acknowledgement of receipt must not be given before the distress message which follows it is sent.

§ 80.313 Frequencies for use in distress.

The frequencies specified in the bands below are for use by mobile stations in distress. The conventional emission is shown. When a ship station cannot transmit on the designated frequency or the conventional emission, it may use any available frequency or emission. Frequencies for distress and safety calling using digital selective calling techniques are listed in § 80.359(b). Distress and safety NB-DP frequencies are indicated by footnote 2 in § 80.361(b).

Frequency band	Emission	Carrier frequency
1615–3500 kHz	J3E	2182 kHz.
118–136 MHz ..	A3E	121.500 MHz.
156–162 MHz ..	F3E, PON	156.800 MHz 156.750 MHz.
243 MHz	A3N	243.000 MHz.

The maximum transmitter power obtainable may be used.

[51 FR 31213, Sept. 2, 1986; 51 FR 34984, Oct. 1, 1986; 68 FR 46968, Aug. 7, 2003; 73 FR 4485, Jan. 25, 2008]

§ 80.314 Distress communications.

(a) The international radiotelephone distress signal consists of the word MAYDAY, pronounced as the French expression ''m'aider''.

(b) These distress signals indicate that a mobile station is threatened by grave and imminent danger and requests immediate assistance.

(c) The radiotelephone distress call consists of:

(1) The distress signal MAYDAY spoken three times;

(2) The words THIS IS;

(3) The call sign (or name, if no call sign assigned) of the mobile station in distress, spoken three times;

(4) Particulars of the station's position;

(5) The nature of the distress;

(6) The kind of assistance desired; and

(7) Any other information which might facilitate rescue, for example, the length, color, and type of vessel, or number of persons on board.

(d) The procedures for canceling false distress alerts are contained in § 80.335.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46968, Aug. 7, 2003; 73 FR 4485, Jan. 25, 2008]

§ 80.317 Radiotelegraph and radiotelephone alarm signals.

(a) The international radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. The purpose of this special signal is the actuation of automatic devices giving the alarm to attract the attention of the operator when there is no listening watch on the distress frequency.

(b) The international radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone must have a frequency of 2200 Hertz and the other a frequency of 1300 Hertz, the duration of each tone being 250 milliseconds. When generated by automatic means, the radiotelephone alarm signal must be transmitted continuously for a period of at least 30 seconds, but not exceeding one minute; when generated by other means, the signal must be transmitted as continuously as practicable over a period of approximately one minute. The purpose of this special signal is to attract the attention of the person on watch or to actuate automatic devices giving the alarm.

§ 80.318 Use of alarm signals.

(a) The radiotelegraph or radiotelephone alarm signal, as appropriate, must only be used to announce:

(1) That a distress call or message is about to follow;

(2) The transmission of an urgent cyclone warning. In this case the alarm signal may only be used by coast stations authorized by the Commission to do so; or

(3) The loss of a person or persons overboard. In this case the alarm signal may only be used when the assistance of other ships is required and cannot be satisfactorily obtained by the use of the urgency signal only, but the alarm signal must not be repeated by other stations. The message must be preceded by the urgency signal.

(b) In cases described in paragraphs (a)(2) and (3) of this section, the transmission of the warning or message by radiotelegraphy must not begin until two minutes after the end of the radiotelegraph alarm signal.

§ 80.319 Radiotelegraph distress call and message transmission procedure.

(a) The radiotelegraph distress procedure consists of the following six steps: however, when time is vital, the first and second steps may be omitted. These two steps of the distress procedure may also be omitted in circumstances when transmission of the alarm signal is considered unnecessary:

(1) The radiotelegraph alarm signal;

(2) The distress call and an interval of two minutes;

(3) The distress call;

(4) The distress message;

(5) Two dashes of ten to fifteen seconds each;

(6) The call sign of the mobile station in distress.

(b) The radiotelegraph distress transmissions must be sent by means of the international Morse code at a speed not exceeding 16 words per minute nor less than 8 words per minute.

(c) The distress message, preceded by the distress call, must be repeated at intervals until an answer is received. The radiotelegraph alarm signal may also be repeated, if necessary.

(d) The transmissions under paragraphs (a) (5) and (6) of this section, which are to permit direction finding stations to determine the position of the station in distress, may be repeated at frequent intervals if necessary.

(e) When the mobile station in distress receives no answer to a distress message transmitted on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.

[51 FR 31213, Sept. 2, 1986, as amended at 69 FR 64674, Nov. 8, 2004]

§ 80.320 Radiotelephone distress call and message transmission procedure.

(a) The radiotelephone distress procedure consists of:

(1) The radiotelephone alarm signal (whenever possible);

(2) The distress call;

(3) The distress message.

(b) The DSC distress procedure consists of:

(1) Transmission by a mobile unit in distress;

(2) Reception;

(3) Acknowledgement of distress calls;

(4) Distress relays.

(c) Radiotelephone distress transmissions must be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

(d) After the transmission by radiotelephony of its distress message, the mobile station may be requested to transmit suitable signals followed by its call sign or name, to permit direction-finding stations to determine its position. This request may be repeated at frequent intervals if necessary.

(e) The distress message, preceded by the distress call, must be repeated at intervals until an answer is received. This repetition must be preceded by the radiotelephone alarm signal whenever possible.

(f) When the mobile station in distress receives no answer to a distress message transmitted on the distress frequency, the message may be repeated on any other available frequency on which attention might be attracted.

[51 FR 31213, Sept. 2, 1986, as amended]

§ 80.321 Acknowledgement of receipt of distress message.

(a) Stations of the maritime mobile service which receive a distress message from a mobile station which is beyond any possible doubt in their vicinity must immediately acknowledge receipt. However, in areas where reliable communication with one or more coast stations is practicable, ship stations may defer this acknowledgement for a short interval so that a coast station may acknowledge receipt.

(b) Stations of the maritime mobile service which receive a distress message from a mobile station which beyond any possible doubt is not in their vicinity, must allow a short interval of time to elapse before acknowledging receipt of the message in order to permit stations nearer to the mobile station in distress to acknowledge receipt without interference.

§ 80.322 Form of acknowledgement.

(a) The acknowledgement of receipt of a radiotelegraph distress message is transmitted in the following form:

(1) The distress signal SOS;

(2) The call sign of the station sending the distress message, sent three times;

(3) The word DE;

(4) The call sign of the station acknowledging receipt, sent three times;

(5) The group RRR;

(6) The message signal SOS.

(b) The acknowledgement of receipt of a radiotelephone distress message is transmitted in the following form:

(1) The distress signal MAYDAY;

(2) The call sign or other identification of the station sending the distress message, spoken three times;

(3) The words THIS IS;

(4) The call sign or other identification of the station acknowledging receipt, spoken three times;

(5) The word RECEIVED;

(6) The distress signal MAYDAY.

§ 80.323 Information furnished by an acknowledging station.

(a) Every mobile station which acknowledges receipt of a distress message must on the order of the master or person responsible for the ship, aircraft, or other vehicle carrying such mobile station, transmit as soon as possible the following information in the order shown:

(1) Its identifier;

(2) Its position;

(3) The speed at which it is proceeding towards, and the approximate time it will take to reach the mobile station in distress.

(b) Before sending this message, the station must ensure that it will not interfere with the emissions of other stations better situated to render immediate assistance to the station in distress.

§ 80.324 Transmission of distress message by station not itself in distress.

(a) A mobile station or a land station which learns that a mobile station is in distress must transmit a distress message in any of the following cases:

(1) When the station in distress cannot transmit the distress message.

(2) When the master or person responsible for the ship, aircraft, or other vehicle not in distress, or for the land station, believes that further help is necessary.

(3) When, although not in a position to assist, it has heard a distress message which has not been acknowledged. When a mobile station transmits such a distress message, it must notify the authorities who may be able to assist.

(b) Transmission must be made on the international distress frequencies or on any other available frequency on which attention might be attracted.

(c) Transmission of the distress message must always be preceded by the call indicated below, which must itself be preceded whenever possible by the radiotelegraph or radiotelephone alarm signal. This call consists of:

(1) When radiotelegraphy is used:

(i) The signal DDD SOS SOS SOS DDD:

(ii) The word DE;

(iii) The call sign of the transmitting station, sent three times.

(2) When radiotelephony is used:

(i) The signal MAYDAY RELAY, spoken three times;

(ii) The words THIS IS;

(iii) The call sign or other identification of the transmitting station, spoken three times.

(d) When the radiotelegraph alarm signal is used, an interval of two minutes must be allowed, whenever this is considered necessary, before the transmission of the call mentioned in paragraph (c)(1) of this section.

§ 80.325 Control of distress traffic.

(a) Distress traffic consists of all messages relating to the immediate assistance required by the mobile station in distress. In distress traffic, the distress signal must be sent before the call and at the beginning of the preamble of any radiotelegram.

(b) The control of distress traffic is the responsibility of the mobile station in distress or of the station which has sent the distress message. These stations may delegate the control of the distress traffic to another station.

(c) The station in distress or the station in control of distress traffic may impose silence either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It must address these instructions ''to all stations'' or to one station only, according to circumstances. In either case, it must use one of the following signals which are reserved for use by the mobile station in distress and for the station controlling distress traffic:

(1) In radiotelegraphy, the abbreviation QRT, followed by the distress signal SOS.

(2) In radiotelephony, the signal SEELONCE MAYDAY.

(d) If essential, any station of the mobile service near the ship, aircraft, or other vehicle in distress may also impose silence. It must use for this purpose:

(1) In radiotelegraphy, the abbreviation QRT, followed by the word DISTRESS and its own call sign;

(2) In radiotelephony, the word SEELONCE, followed by the word DISTRESS and its own call sign or other identification.

§ 80.326 Notification of resumption of normal working.

(a) When distress traffic has ceased, or when complete silence is no longer necessary on a frequency which has been used for distress traffic, the station which has controlled this traffic must transmit on that frequency a message addressed ''to all stations'' indicating that normal working may be resumed.

(1) In radiotelegraphy, this message consists of:

(i) The distress signal SOS;

(ii) The call ''to all stations'' (CQ), sent three times;

(iii) The word DE;

(iv) The call sign of the station sending the message;

(v) The time of handing in the message;

(vi) The name and call sign of the mobile station which was in distress;

(vii) The service abbreviation QUM.

(2) In radiotelephony, this message consists of:

(i) The distress signal MAYDAY;

(ii) The call ''Hello all stations'', spoken three times;

(iii) The words THIS IS;

(iv) The call sign or other identification of the station sending the message;

(v) The time of handing in of the message;

(vi) The name and call sign of the mobile station which was in distress;

(vii) The words SEELONCE FEENEE OR PRU-DONCE.

(b) Until they receive the foregoing message indicating that normal or limited working may be resumed, all stations which are aware of the distress traffic, and which are not taking part in it, are forbidden to transmit on the frequencies on which the distress traffic is taking place.

§ 80.327 Urgency signals and messages.

(a) The urgency signal indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft, or other vehicle, or the safety of a person. The urgency signal must be sent only on the authority of the master or person responsible for the mobile station.

(b) In radiotelegraphy, the urgency signal consists of three repetitions of the group XXX, sent with the individual letters of each group, and the successive groups clearly separated from each other. It must be transmitted before the call.

(c) In radiotelephony, the urgency signal consists of three oral repetitions of the group of words PAN PAN transmitted before the call.

(d) The urgency signal has priority over all other communications except distress. All mobile and land stations which hear it must not interfere with the transmission of the message which follows the urgency signal.

(e) The urgency signal and call, and the message following it, must be sent on one of the international distress frequencies. Stations which cannot transmit on a distress frequency may use any other available frequency on which attention might be attracted.

(f) Mobile stations which hear the urgency signal must continue to listen for at least three minutes. At the end of this period, if no urgency message has been heard, they may resume their normal service. However, land and mobile stations which are in communication on frequencies other than those used for the transmission of the urgency signal and of the call which follows it may continue their normal work without interruption provided the urgency message is not addressed ''to all stations''.

(g) When the urgency signal has been sent before transmitting a message ''to all stations'' which calls for action by the stations receiving the message, the station responsible for its transmission must cancel it as soon as it knows that action is no longer necessary. This message of cancellation must likewise be addressed ''to all stations''.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 73 FR 4485, Jan. 25, 2008]

§ 80.329 Safety signals and messages.

(a) The safety signal indicates that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings.

(b) In radiotelegraphy, the safety signal consists of three repetitions of the group TTT, sent with the individual

letters of each group, and the successive groups clearly separated from each other. It must be sent before the call.

(c) In radiotelephony, the safety signal consists of the word SECURITE, pronounced as in French, spoken three times and transmitted before the call.

(d) The safety signal and call must be sent on one of the international distress frequencies (2182 kHz or 156.8 MHz radiotelephone). Stations which cannot transmit on a distress frequency may use any other available frequency on which attention might be attracted.

(e) The safety signal and call must be followed by the safety message. Where practicable, the safety message should be sent on a working frequency, and a suitable announcement to this effect must be made at the end of the call.

(f) Messages about meteorological warnings, of cyclones, dangerous ice, dangerous wrecks, or any other imminent danger to marine navigation must be preceded by the safety signal.

(g) Stations hearing the safety signal must not make any transmission likely to interfere with the message.

[51 FR 31213, Sept. 2, 1986, as amended at 69 FR 64674, Nov. 8, 2004; 73 FR 4485, Jan. 25, 2008]

§ 80.331 Bridge-to-bridge communication procedure.

(a) Vessels subject to the Bridge-to-Bridge Act transmitting on the designated navigational frequency must conduct communications in a format similar to those given below:

(1) This is the (name of vessel). My position is (give readily identifiable position, course and speed) about to (describe contemplated action). Out.

(2) Vessel off (give a readily identifiable position). This is (name of vessel) off (give a readily identifiable position). I plan to (give proposed course of action). Over.

(3) (Coast station), this is (vessel's name) off (give readily identifiable position). I plan to (give proposed course of action). Over.

(b) Vessels acknowledging receipt must answer ''(Name of vessel calling). This is (Name of vessel answering). Received your call,'' and follow with an indication of their intentions. Communications must terminate when each ship is satisfied that the other no longer poses a threat to its safety and is ended with ''Out''.

(c) Use of power greater than 1 watt in a bridge-to-bridge station shall be limited to the following three situations:

(1) Emergency.

(2) Failure of the vessel being called to respond to a second call at low power.

(3) A broadcast call as in paragraph (a)(1) of this section in a blind situation, e.g., rounding a bend in a river.

§ 80.332 Equipment to aid search and rescue operations.

(a) Survival craft stations may transmit distress, urgency and safety signals, calls and messages.

(b) EPIRB's may transmit only in accordance with the requirements of subparts V and X of this part.

§ 80.333 Stations in the maritime mobile-satellite service.

The provisions of §§ 80.311 and 80.324 apply to the operations of ship earth stations in the maritime mobile-satellite service.

§ 80.334 False distress alerts.

A distress alert is false if it was transmitted without any indication that a mobile unit or person was in distress and required immediate assistance. Transmitting a false distress alert is prohibited and may be subject to the provisions of part 1, subpart A of this chapter if that alert:

(a) Was transmitted intentionally;

(b) Was not cancelled in accordance with § 80.335;

(c) Could not be verified as a result of either the ship's failure to keep watch on appropriate frequencies in accordance with § 80.1123 or subpart G of this part, or its failure to respond to calls from the U.S. Coast Guard;

(d) Was repeated; or

(e) Was transmitted using a false identity.

[68 FR 46968, Aug. 7, 2003]

§ 80.335 Procedures for canceling false distress alerts.

If a distress alert is inadvertently transmitted, the following steps shall be taken to cancel the distress alert.

(a) VHF Digital Selective Calling.

(1) Reset the equipment immediately;

(2) Immediately cancel the distress alert orally over the telephony distress traffic channel associated with each DSC channel on which the distress alert was transmitted;

(3) Set to Channel 16; and

(4) Transmit a broadcast message to ''All stations'' giving the ship's name, call sign or registration number, and MMSI, and cancel the false distress alert.

(b) MF Digital Selective Calling.

(1) Reset the equipment immediately;

(2) Immediately cancel the distress alert orally over the telephony distress traffic channel associated with each DSC channel on which the distress alert was transmitted; and

(3) Tune for radiotelephony transmission on 2182 kHz; and

(4) Transmit a broadcast message to ''All stations'' giving the ship's name, call sign or registration number, and MMSI, and cancel the false distress alert.

(c) HF Digital Selective Calling;

(1) Reset the equipment immediately;

(2) Immediately cancel the distress alert orally over the telephony distress traffic channel associated with each DSC channel on which the distress alert was transmitted;

(3) Tune for radiotelephony on the distress and safety frequency in each band in which a false distress alert was transmitted; and

(4) Transmit a broadcast message to ''All stations'' giving the ship's name, call sign or registration number, and MMSI, and cancel the false distress alert frequency in each band in which a false distress alert was transmitted.

(d) INMARSAT ship earth station. Immediately notify the appropriate rescue coordination center that the alert is cancelled by sending a distress priority message by way of the same land earth station through which the false distress alert was sent. Provide ship name, call sign or registration number, and INMARSAT identity with the cancelled alert message.

(e) EPIRB. If for any reason an EPIRB is activated inadvertently, immediately contact the nearest U.S. Coast Guard unit or appropriate rescue coordination center by telephone, radio or ship earth station and cancel the distress alert.

(f) General and other distress alerting systems. Notwithstanding paragraphs (a) through (e) of this section, ships may use additional appropriate means available to them to inform the nearest appropriate U.S. Coast Guard rescue coordination center that a false distress alert has been transmitted and should be cancelled.

[68 FR 46968, Aug. 7, 2003, as amended at 73 FR 4485, Jan. 25, 2008]

Subpart H—Frequencies

RADIOTELEGRAPHY

§ 80.351 Scope.

The following sections describe the carrier frequencies and general uses of radiotelegraphy with respect to the following:

—Distress, urgency, safety, call and reply.
—Working.
—Digital selective calling (DSC).
—Narrow-band direct-printing (NB-DP).
—Facsimile.

§ 80.353 [Reserved]

§ 80.355 Distress, urgency, safety, call and reply Morse code frequencies.

This section describes the distress, urgency, safety, call and reply carrier frequencies assignable to stations for Morse code radiotelegraphy.

(a) *Frequencies in the 100–160 kHz band.* The international calling frequency in the 100–160 kHz band is 143 kHz using A1A or J2A emission. When a ship station operating in the 100–160 kHz band desires to communicate with a coast station, it must call on the frequency 143 kHz unless the International List of Coast Stations provides otherwise. Coast stations must reply on their normal working frequency in this band. Only individual calls, replies to such calls, and transmission of signals preparatory to traffic may be transmitted on 143 kHz.

(b) *Frequencies in the 2000–27500 kHz band*—(1) *Ship station frequencies.* The following table describes the calling frequencies in the 4000–27500 kHz band which are available for use by authorized ship stations equipped with crystal-controlled oscillators for A1A, J2A,

J2B, or J2D radiotelegraphy. There are two series of frequencies for worldwide use and two series of frequencies for each geographic region. Ship stations with synthesized transmitters may operate on every full 100 Hz increment in the 0.5 kHz channel for the frequencies listed, except for 100 Hz above and below those designated for worldwide use. During normal business hours when not communicating on other frequencies, all U.S. coast radiotelegraph stations must monitor the worldwide frequencies and the initial calling frequencies for the region in which it is located. The specific frequencies which must be monitored by a coast station will vary with propagation conditions. The calling frequencies which are routinely monitored by specific coast stations can be determined by reference to the ITU publication entitled ''List of Coast Stations.'' Initial calls by ship stations must be made on the appropriate initial calling frequency first. Calls on the worldwide frequencies may be made only after calls on the appropriate initial calling frequency are unsuccessful.

SHIP MORSE CALLING FREQUENCIES (KHZ)

	ITU							ITU	
Region:									
Worldwide	3	4184.0	6276.0	8368.0	12552.0	16736.0	22280.5	C	25172.0
	4	4184.5	6276.5	8369.0	12553.5	16738.0	22281.0	C	25172.0
Atlantic:									
Initial	1	4182.0	6277.0	8366.0	12550.0	16734.0	22279.5	A	25171.5
Alternate	2	4182.5	6277.5	8366.5	12550.5	16734.5	22280.0	A	25171.5
Caribbean:									
Initial	1	4182.0	6277.0	8366.0	12550.0	16734.0	22279.5	A	25171.5
Alternate	2	4182.5	6277.5	8366.5	12550.5	16734.5	22280.0	A	25171.5
Gulf-Mexico:									
Initial	5	4183.0	6278.0	8367.0	12551.0	16735.0	22281.5	A	25171.5
Alternate	6	4183.5	6278.5	8367.5	12551.5	16735.5	22282.0	A	25171.5
N Pacific:									
Initial	7	4185.0	6279.0	8368.5	12552.5	16736.5	22282.5	B	25172.5
Alternate	8	4185.5	6279.5	8369.5	12553.0	16737.0	22283.0	B	25172.5
S Pacific:.									
Initial	9	4186.0	6280.0	8370.0	12554.0	16737.5	22283.5	B	25172.5
Alternate	10	4186.5	6280.5	8370.5	12554.5	16738.5	22284.0	B	25172.5

(2) *Coast Station frequencies*. Coast stations may use any working carrier frequency for distress, safety and calling listed in § 80.357(b)(1) which is not identified with a specific use.

(c) *Frequencies in the VHF bands*. (1) Survival craft stations using 121.500 MHz may be assigned A3N emission for radiobeacon purposes.

(2) EPIRB stations may be assigned 121.500 MHz and 243 MHz using A3E, A3X and NON emission or 406.0–406.1 MHz using G1D emission to aid search and rescue operations. See subpart V of this part.

[51 FR 31213, Sept. 2, 1986; 51 FR 34984, Oct. 1, 1986; 52 FR 35245, Sept. 18, 1987; 56 FR 9886, Mar. 8, 1991; 56 FR 11516, Mar. 19, 1991; 68 FR 46969, Aug. 7, 2003; 69 FR 64674, Nov. 8, 2004]

§ 80.357 Working frequencies for Morse code and data transmission.

This section describes the working frequencies assignable to maritime stations for A1A, J2A, J2B (2000–27500 kHz band only), or J2D (2000–27500 kHz band only) radiotelegraphy.

(a) *Ship station frequencies*—(1) *Frequencies in the 100–160 kHz band*. The following table describes the working carrier frequencies in the 100–160 kHz band which are assignable to ship stations. A ship station may also transmit on a radiotelegraphy working channel of a coast station within the 100–160 kHz band when directed to do so by the coast station provided interference is not caused to any land, fixed, broadcast, or radiolocation station.

100–160 (kHz)
152
153
154
155
156
157
158

(2) *Frequencies in the 405–525 kHz band.* The following table describes the working carrier frequencies in the 405–525 kHz band which are assignable to ship stations. A ship station may transmit on a radiotelegraphy working channel of a coast station in the 415–490 kHz band when directed to do so by the coast station.

405–525 (kHz)
[1] 410
425
454
468
480
[2] 512
[3] 518

[1] The frequency 410 kHz may be used on a secondary basis for the transmission of radiodetermination information and for transmitting by radiotelegraph radiodetermination related messages to direction-finding stations.

[2] The frequency 512 kHz may be used as a supplementary calling frequency when 500 kHz is used for distress, safety and urgency communications. The use of the 512 kHz as a working frequency is prohibited in areas where it is used as a supplementary calling frequency when 500 kHz is used for distress, safety, and urgency communications.

[3] The frequency 518 kHz is a receive only frequency by ship stations. It is used by U.S. Coast Guard coast stations for NB-DP transmissions of meteorological and navigational warnings to ships.

(3) *Frequencies in the 2000–27500 kHz band.* This paragraph describes the working frequencies and Channel Series in the 2000–27500 kHz band which are assignable to ship stations.

(i) Two Channel Series will be assigned for routine use to each ship station. Frequencies from any other Channel Series may be used if the frequencies in the assigned Channel Series are not adequate for communications.

SHIP MORSE WORKING FREQUENCIES (KHZ)

Channel Series:							
W1	4187.0	6285.0	8342.0 8343.5	12422.0 12453.0	16619.0 16650.0 16681.0	22242.0 22273.0	25161.5
W2	4187.5	6285.5	8342.5 8344.0	12422.5 12453.5	16619.5 16650.5 16681.5	22242.5 22273.5	25162.0
W3	4188.0	6286.0	8343.0 8344.5	12423.0 12454.0	16620.0 16651.0 16682.0	22243.0 22274.0	25162.5
W4	4188.5	6286.5	8343.5 8345.0	12423.5 12454.5	16620.5 16651.5 16682.5	22243.5 22274.5	25163.0
W5	4189.0	6287.0	8344.0 8345.5	12424.0 12455.0	16621.0 16652.0 16683.0	22244.0 22275.0	25163.5
W6	4189.5	6287.5	8344.5 8346.0	12424.5 12455.5	16621.5 16652.5 16619.0	22244.5 22275.5	25164.0
W7	4190.0	6288.0	8345.0 8346.5	12425.0 12456.0	16622.0 16653.0 16619.5	22245.0 22276.0	25164.5
W8	4190.5	6288.5	8345.5 8347.0	12425.5 12456.5	16622.5 16653.5 16620.0	22245.5 22276.5	25165.0
W9	4191.0	6289.0	8346.0 8347.5	12426.0 12457.0	16623.0 16654.0 16620.5	22246.0 22277.0	25165.5
W10	4191.5	6289.5	8346.5 8348.0	12426.5 12457.5	16623.5 16654.5 16621.0	22246.5 22270.5	25166.0
W11	4192.0	6290.0	8347.0 8348.5	12427.0 12458.0	16624.0 16655.0 16621.5	22247.0 22278.0	25166.5
W12	4192.5	6290.5	8347.5 8349.0	12427.5 12458.5	16624.5 16655.5	22247.5 22278.5	25167.0

SHIP MORSE WORKING FREQUENCIES (KHZ)—Continued

					16622.0		
W13	4193.0	6291.0	8348.0	12428.0	16625.0	22248.0	25167.5
			8349.5	12459.0	16656.0	22279.0	
					16622.5		
W14	4193.5	6291.5	8348.5	12428.5	16625.5	22248.5	25168.0
			8350.0	12459.5	16656.5	22242.0	
					16623.0		
W15	4194.0	6292.0	8349.0	12429.0	16626.0	22249.0	25168.5
			8350.5	12460.0	16657.0	22242.5	
					16623.5		
W16	4194.5	6292.5	8349.5	12429.5	16626.5	22249.5	25169.0
			8351.0	12460.5	16657.5	22243.0	
					16624.0		
W17	4195.0	6293.0	8350.0	12430.0	16627.0	22250.0	25169.5
			8351.5	12461.0	16658.0	22243.5	
					16624.5		
W18	4195.5	6293.5	8350.5	12430.5	16627.5	22250.5	25170.0
			8352.0	12461.5	16658.5	22244.0	
					16625.0		
W19	4196.0	6294.0	8351.0	12431.0	16628.0	22251.0	25170.5
			8352.5	12462.0	16659.0	22244.5	
					16625.5		
W20	4196.5	6294.5	8351.5	12431.5	16628.5	22251.5	25171.0
			8353.0	12462.5	16659.5	22245.0	
					16626.0		
W21	4197.0	6295.0	8352.0	12432.0	16629.0	22252.0	25161.5
			8353.5	12463.0	16660.0	22245.5	
					16626.5		
W22	4197.5	6295.5	8352.5	12432.5	16629.5	22252.5	25162.0
			8354.0	12463.5	16660.5	22246.0	
					16627.0		
W23	4198.0	6296.0	8353.0	12433.0	16630.0	22253.0	25162.5
			8354.5	12464.0	16661.0	22246.5	
					16627.5		
W24	4198.5	6296.5	8353.5	12433.5	16630.5	22253.5	25163.0
			8355.0	12464.5	16661.5	22247.0	
					16628.0		
W25	4199.0	6297.0	8354.0	12434.0	16631.0	22254.0	25163.5
			8355.5	12465.0	16662.0	22247.5	
					16628.5		
W26	4199.5	6297.5	8354.5	12434.5	16631.5	22254.5	25164.0
			8356.0	12465.5	16662.5	22248.0	
					16629.0		
W27	4200.0	6298.0	8355.0	12435.0	16632.0	22255.0	25164.5
			8356.5	12466.0	16663.0	22248.5	
					16629.5		
W28	4200.5	6298.5	8355.5	12435.5	16632.5	22255.5	25165.0
			8357.0	12466.5	16663.5	22249.0	
					16630.0		
W29	4201.0	6299.0	8356.0	12436.0	16633.0	22256.0	25165.5
			8357.5	12467.0	16664.0	22249.5	
					16630.5		
W30	4201.5	6299.5	8356.5	12436.5	16633.5	22256.5	25166.0
			8358.0	12467.5	16664.5	22250.0	
					16631.0		
W31	4202.0	6300.0	8357.0	12437.0	16634.0	22257.0	25166.5
			8358.5	12468.0	16665.0	22250.5	
					16631.5		
W32	4202.0	6300.0	8357.5	12437.5	16634.5	22257.5	25167.0
			8359.0	12468.5	16665.5	22251.0	
					16632.0		
W33	4201.5	6299.5	8358.0	12438.0	16635.0	22258.0	25167.5
			8359.5	12469.0	16666.0	22251.5	
					16632.5		
W34	4201.0	6299.0	8358.5	12438.5	16635.5	22258.5	25168.0

SHIP MORSE WORKING FREQUENCIES (KHZ)—Continued

			8360.0	12469.5	16666.5	22252.0	
					16633.0		
W35	4200.5	6298.5	8359.0	12439.0	16636.0	22259.0	25168.5
			8360.5	12470.0	16667.0	22252.5	
					16633.5		
W36	4200.0	6298.0	8359.5	12439.5	16636.5	22259.5	25169.0
			8361.0	12470.5	16667.5	22253.0	
					16634.0		
W37	4199.5	6297.5	8360.0	12440.0	16637.0	22260.0	25169.5
			8361.5	12471.0	16668.0	22253.5	
					16634.5		
W38	4199.0	6297.0	8360.5	12440.5	16637.5	22260.5	25170.0
			8362.0	12471.5	16668.5	22254.0	
					16635.0		
W39	4198.5	6296.5	8361.0	12441.0	16638.0	22261.0	25170.5
			8362.5	12472.0	16669.0	22254.5	
					16635.5		
W40	4198.0	6296.0	8361.5	12441.5	16638.5	22261.5	25171.0
			8363.0	12472.5	16669.5	22255.0	
					16636.0		
W41	4197.5	6295.5	8362.0	12442.0	16639.0	22262.0	25161.5
			8363.5	12473.0	16670.0	22255.5	
					16636.5		
W42	4197.0	6295.0	8362.5	12442.5	16639.5	22262.5	25162.0
			8364.0	12473.5	16670.5	22256.0	
					16637.0		
W43	4196.5	6294.5	8363.0	12443.0	16640.0	22263.0	25162.5
			8364.5	12474.0	16671.0	22256.5	
					16637.5		
W44	4196.0	6294.0	8363.5	12443.5	16640.5	22263.5	25163.0
			8365.0	12474.5	16671.5	22257.0	
					16638.0		
W45	4195.5	6293.5	8364.0	12444.0	16641.0	22264.0	25163.5
			8365.5	12475.0	16672.0	22257.5	
					16638.5		
W46	4195.0	6293.0	8364.5	12444.5	16641.5	22264.5	25164.0
			8371.0	12475.5	16672.5	22258.0	
					16639.0		
W47	4194.5	6292.5	8365.0	12445.0	16642.0	22265.0	25164.5
			8371.5	12476.0	16673.0	22258.5	
					16639.5		
W48	4194.0	6292.0	8365.5	12445.5	16642.5	22265.5	25165.0
			8372.0	12476.5	16673.5	22259.0	
					16640.0		
W49	4193.5	6291.5	8371.0	12446.0	16643.0	22266.0	25165.5
			8372.5	12422.0	16674.0	22259.5	
					16640.5		
W50	4193.0	6291.0	8371.5	12446.5	16643.5	22266.5	25166.0
			8373.0	12422.5	16674.5	22260.0	
					16641.0		
W51	4192.5	6290.5	8372.0	12447.0	16644.0	22267.0	25166.5
			8373.5	12423.0	16675.0	22260.5	
					16641.5		
W52	4192.0	6290.0	8372.5	12447.5	16644.5	22267.5	25167.0
			8374.0	12423.5	16675.5	22261.0	
					16642.0		
W53	4191.5	6289.5	8373.0	12448.0	16645.0	22268.0	25167.5
			8374.5	12424.0	16676.0	22261.5	
					16642.5		
W54	4191.0	6289.0	8373.5	12448.5	16645.5	22268.5	25168.0
			8375.0	12424.5	16676.5	22262.0	
					16643.0		
W55	4190.5	6288.5	8374.0	12449.0	16646.0	22269.0	25168.5
			8375.5	12425.0	16677.0	22262.5	
					16643.5		

SHIP MORSE WORKING FREQUENCIES (KHZ)—Continued

W56	4190.0	6288.0	8374.5 8376.0	12449.5 12425.5	16646.5 16677.5 16644.0	22269.5 22263.0	25169.0
W57	4189.5	6287.5	8375.0 8342.0	12450.0 12426.0	16647.0 16678.0 16644.5	22270.0 22263.5	25169.5
W58	4189.0	6287.0	8375.5 8342.5	12450.5 12426.5	16647.5 16678.5 16645.0	22270.5 22264.0	25170.0
W59	4188.5	6286.5	8376.0 8343.0	12451.0 12427.0	16648.0 16679.0 16645.5	22271.0 22264.5	25170.5
W60	4188.0	6286.0	8342.0 8343.5	12451.5 12427.5	16648.5 16679.5 16646.0	22271.5 22265.0	25171.0
W61	4187.5	6285.5	8342.5 8344.0	12452.0 12428.0	16649.0 16680.0 16646.5	22272.0 22265.5	25161.5
W62	4187.0	6285.0	8343.0 8344.5	12452.5 12428.5	16649.5 16680.5 16678.0	22272.5 22266.0	25162.0

(ii) If the frequencies listed in paragraph (3)(i) of this section are not adequate for communications, ship stations may use any of the non-paired narrow-band direct-printing frequencies listed in § 80.361(b) of this part for A1A or J2A radiotelegraphy.

(b) *Coast station frequencies*—(1) *Frequencies in the 100–27500 kHz band*. The following table describes the working carrier frequencies in the 100–27500 kHz band which are assignable to coast stations located in the designated geographical areas. The exclusive maritime mobile HF bands listed in the table contained in § 80.363(a)(2) of this chapter are also available for assignment to public coast stations for A1A, J2A, J2B, or J2D radiotelegraphy following coordination with government users.

Area	Bands [1]								
	100–160 kHz	405–525 kHz	2 MHz	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	22 MHz
Central Pacific	126.15	426.00	2037.5	4247.0	6348.0	8558.0	12695.5	17016.8	22479.0
	.....	436.00	2045.0	4274.0	6365.5	8618.0	12808.5	17026.0	22515.0
	147.85	460.00	2061.5	4228.0	6477.5	8642.0	12844.5	17088.8	22557.0
	.....	476.0	.....	.....	6488.0	8445.0	13002.0	.....	22581.5
	.....	500.00	.....	.....	.....	.....	13033.5	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
South Pacific	.....	418.00	2049.5	4238.0	6355.0	8590.0	12691.0	17064.8	22467.0
	.....	464.00	2055.5	4283.0	6463.5	8606.0	12912.0	17088.8	22593.5
	.....	482.00	.....	.....	.....	8642.0	12993.0	17220.5	.....
	.....	500.00	.....	.....	.....	.....	13033.5	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
Gulf of Mexico	153.00	410.00	2042.0	4256.0	6369.0	8473.0	12704.5	17117.6	22467.0
	.....	420.00	2048.0	4274.0	6435.5	8550.0	12826.5	17170.4	22668.5
	.....	434.00	2049.5	4310.0	6446.0	8570.0	12840.0	17172.4	22686.5
	.....	438.00	2052.5	4322.0	6495.0	8666.0	13038.0	17230.1	22688.0
	.....	478.00	2055.5	.....	.....	8445.0	13051.5	.....	.....
	.....	484.00	2063.0	.....	.....	8453.0	12660.0	.....	.....
	.....	500.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
Great Lakes	.....	482.00	.....	4316.0	6474.0	8534.0	.....	.....	.....
	.....	500.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
Hawaii	.....	484.00	2052.5	4295.0	6407.5	8542.0	13029.0	16978.4	22509.0
	.....	500.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
Puerto Rico	153.00	486.00	2052.5	4244.0	.....	8457.0	12700.0	.....	.....
	.....	500.00	.....	.....	.....	.....	.....	.....	.....

Area	Bands [1]								
	100–160 kHz	405–525 kHz	2 MHz	4 MHz	6 MHz	8 MHz	12 MHz	16 MHz	22 MHz
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
North Atlantic	112.85	418.00	2036.0	4238.0	6351.5	8502.0	12745.5	16933.2	22485.0
	124.05	436.00	2040.5	4268.0	6376.0	8514.0	12925.5	16968.8	22503.0
	130.35	442.00	2046.5	4331.0	6414.5	8586.0	12948.0	16973.6	22521.0
	132.10	460.00	2051.0	4343.0	6418.0	8610.0	12961.5	16997.6	22599.5
	134.55	472.00	2054.0	4346.0	6333.5	8630.0	12997.5	17021.6	22640.0
	137.00	476.00	2060.0	.....	6337.0	8658.0	13020.0	17093.6	22658.0
	.....	482.00	.....	.....	6344.0	8686.0	13024.5	16904.9	.....
	146.80	500.00	.....	.....	.....	.....	13033.5	.....	.....
	147.50	512.00	.....	.....	.....	.....	13060.5	.....	.....
Central Atlantic	.....	428.00	2063.0	4346.0	6484.5	8502.0	12885.0	16916.5	22588.5
	.....	500.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
South Atlantic	137.70	434.00	2039.0	4250.0	6389.6	8486.0	12952.5	16918.8	22503.0
	.....	464.00	2043.5	4292.0	6407.5	8525.0	12970.5	17093.6	22575.5
	.....	472.00	2051.0	4295.0	6411.0	8686.0	13011.0	17160.8	.....
	.....	488.00	2057.0	.....	.....	8453.0	12660.0	17170.4	.....
	.....	500.00	.....	.....	.....	.....	.....	17239.7	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
North Pacific	.....	482.00	2058.5	4349.0	6411.0	8582.0	12907.5	17007.2	22539.0
	.....	488.00	2063.0	.....	.....	8658.0	12916.5	.....	.....
	.....	500.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....
Alaska	.....	416.00	.....	.....	.....	.....	.....	.....	.....
	.....	438.00	.....	.....	.....	.....	.....	.....	.....
	.....	452.00	.....	.....	.....	.....	.....	.....	.....
	.....	472.00	.....	.....	.....	.....	.....	.....	.....
	.....	512.00	.....	.....	.....	.....	.....	.....	.....

[1] All frequencies in this table are shown in kilohertz.

(2) *Conditions of use*. The following conditions are applicable to these frequencies:

(i) Frequencies in the 100–160 kHz band are assignable to coast stations for high seas communications only;

(ii) Frequencies above 5 MHz may be assigned primarily to stations serving the high seas and secondarily to stations serving inland waters of the United States, including the Great Lakes, under the condition that interference will not be caused to any coast station serving the high seas.

(iii) The frequency 410 kHz may be used on a secondary basis for the transmission of radiodetermination information and for transmitting by radiotelegraph radiodetermination messages to direction-finding stations; and

[51 FR 31213, Sept. 2, 1986; 51 FR 34984, Oct. 1, 1986, as amended at 56 FR 9887, Mar. 8, 1991; 56 FR 34029, July 25, 1991; 65 FR 77824, Dec. 13, 2000; 67 FR 48264, July 15, 2002; 68 FR 46969, Aug. 7, 2003; 69 FR 64674, Nov. 8, 2004]

§ 80.359 Frequencies for digital selective calling (DSC).

(a) *General purpose calling*. The following table describes the calling frequencies for use by authorized ship and coast stations for general purpose DSC. There are three series of paried frequencies. One series is for worldwide use; the other two series are for regional use. The ''Series A'' designation includes coast stations along, and ship stations in, the Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. The ''Series B'' designation includes stations in any remaining areas. Stations must initiate contact on the appropriate regional frequency depending upon the location of the called station and propagation conditions. Acknowledgement is made on the paired frequency. The worldwide frequencies may be used for international calling, if calls on the appropriate regional frequencies are unsuccessful, or the regional series does not contain the appropriate band (*e.g.*, 2 MHz). During normal working hours, all public coast stations capable of DSC operations must monitor the worldwide and regional frequencies appropriate for its location. The specific frequencies to be monitored will vary with propagation conditions.

GENERAL PURPOSE DSC

[In kHz unless otherwise noted]

Worldwide		Series A		Series B	
Ship	Coast	Ship	Coast	Ship	Coast
458.5	455.5	.....	.....	.....	.....
2189.5	[1] 2177.0	.....	.....	.....	.....
4208.0	4219.5	4208.5	4220.0	4209.0	4220.5
6312.5	6331.0	6313.0	6331.5	6313.5	6332.0
8415.0	8436.5	8415.5	8437.0	8416.0	8437.5
12577.5	12657.0	12578.0	12657.5	12578.5	12658.0
16805.0	16903.0	16805.5	16903.5	16806.0	16904.0
18898.5	19703.5	18899.0	19704.0	18899.5	19704.5
22374.5	22444.0	22375.0	22444.5	22375.5	22445.0
25208.5	26121.0	25209.0	26121.5	25209.5	26122.0
[2] 156.525	[2] 156.525	.....	.....	.....	.....

[1] The frequency 2177.0 kHzs is also available to ship stations for intership calling and acknowledgement of such calls only.
[2] MHz.

(b) *Distress and safety calling*. The frequencies 2187.5 kHz, 4207.5 kHz, 6312.0 kHz, 8414.5 kHz, 12577.0 kHz, 16804.5 kHz and 156.525 MHz may be used for DSC by coast and ship stations on a simplex basis for distress and safety purposes, and may also be used for routine ship-to-ship communications provided that priority is accorded to distress and safety communications. The provisions and procedures for distress and safety calling are contained in ITU–R M.541–9 (incorporated by reference, *see* § 80.7), and § 80.103(c).

(c) *Working frequencies*. Coast and ship stations may use DSC techniques for general calling purposes on their assigned working frequencies in the 2000–27500 kHz band and on those frequencies in the 156–162 MHz band which are allocated for maritime control, commercial, non-commercial and public correspondence communications.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 49995, Dec. 4, 1989; 56 FR 9890, Mar. 8, 1991; 56 FR 14150, Apr. 5, 1991; 68 FR 46969, Aug. 7, 2003; 73 FR 4485, Jan. 25, 2008; 76 FR 67612, Nov. 2, 2011]

§ 80.361 Frequencies for narrow-band direct-printing (NBDP), radioprinter and data transmissions.

(a) *Paired channels*. The following frequencies are available for assignment to public coast stations for narrow-band direct-printing (NBDP) and data transmissions. The paired ship frequencies are available for use by authorized ship stations for NBDP and data transmissions.

Ch. no.	Paired frequencies for NBDP and data transmissions (kHz)															
	4 MHz		6 MHz		8 MHz		12 MHz		16 MHz		18/19 MHz		22 MHz		25/26 MHz	
	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship
1	4210.5	4172.5	6314.5	6263.0			12579.5	12477.0	16807.0	16683.5	19681.0	18870.5	22376.5	22284.5	26101.0	25173.0
2	4211.0	4173.0	6315.0	6263.5	8417.0	8377.0	12580.0	12477.5	16807.5	16684.0	19681.5	18871.0	22377.0	22285.0	26101.5	25173.5
3	4211.5	4173.5	6315.5	6264.0	8417.5	8377.5	12580.5	12478.0	16808.0	16684.5	19682.0	18871.5	22377.5	22285.5	26102.0	25174.0
4	4212.0	4174.0	6316.0	6264.5	8418.0	8378.0	12581.0	12478.5	16808.5	16685.0	19682.5	18872.0	22378.0	22286.0	26102.5	25174.5
5	4212.5	4174.5	6316.5	6265.0	8418.5	8378.5	12581.5	12479.0	16809.0	16685.5	19683.0	18872.5	22378.5	22286.5	26103.0	25175.0
6	4213.0	4175.0	6317.0	6265.5	8419.0	8379.0	12582.0	12479.5	16809.5	16686.0	19683.5	18873.0	22379.0	22287.0	26103.5	25175.5
7	4213.5	4175.5	6317.5	6266.0	8419.5	8379.5	12582.5	12480.0	16810.0	16686.5	19684.0	18873.5	22379.5	22287.5	26104.0	25176.0
8	4214.0	4176.0	6318.0	6266.5	8420.0	8380.0	12583.0	12480.5	16810.5	16687.0	19684.5	18874.0	22380.0	22288.0	26104.5	25176.5
9	4214.5	4176.5	6318.5	6267.0	8420.5	8380.5	12583.5	12481.0	16811.0	16687.5	19685.0	18874.5	22380.5	22288.5	26105.0	25177.0
10	4215.0	4177.0	6319.0	6267.5	8421.0	8381.0	12584.0	12481.5	16811.5	16688.0	19685.5	18875.0	22381.0	22289.0	26105.5	25177.5
11					8421.5	8381.5	12584.5	12482.0	16812.0	16688.5	19686.0	18875.5	22381.5	22289.5	26106.0	25178.0
12	4215.5	4178.0	6319.5	6268.5	8422.0	8382.0	12585.0	12482.5	16812.5	16689.0	19686.5	18876.0	22382.0	22290.0	26106.5	25178.5
13	4216.0	4178.5	6320.0	6269.0	8422.5	8382.5	12585.5	12483.0	16813.0	16689.5	19687.0	18876.5	22382.5	22290.5	26107.0	25179.0
14	4216.5	4179.0	6320.5	6269.5	8423.0	8383.0	12586.0	12483.5	16813.5	16690.0	19687.5	18877.0	22383.0	22291.0	26107.5	25179.5
15	4217.0	4179.5	6321.0	6270.0	8423.5	8383.5	12586.5	12484.0	16814.0	16690.5	19688.0	18877.5	22383.5	22291.5	26108.0	25180.0
16	4217.5	4180.0	6321.5	6270.5	8424.0	8384.0	12587.0	12484.5	16814.5	16691.0	19688.5	18878.0	22384.0	22292.0	26108.5	25180.5
17	4218.0	4180.5	6322.0	6271.0	8424.5	8384.5	12587.5	12485.0	16815.0	16691.5	19689.0	18878.5	22384.5	22292.5	26109.0	25181.0
18			6322.5	6271.5	8425.0	8385.0	12588.0	12485.5	16815.5	16992.0	19689.5	18879.0	22385.0	22293.0	26109.5	25181.5
19			6323.0	6272.0	8425.5	8385.5	12588.5	12486.0	16816.0	16692.5	19690.0	18879.5	22385.5	22293.5	26110.0	25182.0
20			6323.5	6272.5	8426.0	8386.0	12589.0	12486.5	16816.5	16693.0	19690.5	18880.0	22386.0	22294.0	26110.5	25182.5
21			6324.0	6273.0	8426.5	8386.5	12589.5	12487.0	16817.0	16693.5	19691.0	18880.5	22386.5	22294.5		
22			6324.5	6273.5	8427.0	8387.0	12590.0	12487.5	16817.5	16694.0	19691.5	18881.0	22387.0	22295.0		
23			6325.0	6274.0	8427.5	8387.5	12590.5	12488.0	16818.0	16694.5			22387.5	22295.5		
24			6325.5	6274.5	8428.0	8388.0	12591.0	12488.5					22388.0	22296.0		
25			6326.0	6275.0	8428.5	8388.5	12591.5	12489.0	16818.5	16695.5			22388.5	22296.5		
26			6326.5	6275.5	8429.0	8389.0	12592.0	12489.5	16819.0	16696.0			22389.0	22297.0		
27			6327.0	6281.0	8429.5	8389.5	12592.5	12490.0	16819.5	16696.5			22389.5	22297.5		
28			6327.5	6281.5	8430.0	8390.0	12593.0	12490.5	16820.0	16697.0			22390.0	22298.0		
29			6328.0	6282.0	8430.5	8390.5	12593.5	12491.0	16820.5	16697.5			22390.5	22298.5		
30					8431.0	8391.0	12594.0	12491.5	16821.0	16698.0			22391.0	22299.0		
31					8431.5	8391.5	12594.5	12492.0	16821.5	16698.5			22391.5	22299.5		
32					8432.0	8392.0	12595.0	12492.5	16822.0	16699.0			22392.0	22300.0		
33					8432.5	8392.5	12595.5	12493.0	16822.5	16699.5			22392.5	22300.5		
34					8433.0	8393.0	12596.0	12493.5	16823.0	16700.0			22393.0	22301.0		
35							12596.5	12494.0	16823.5	16700.5			22393.5	22301.5		
36							12597.0	12494.5	16824.0	16701.0			22394.0	22302.0		
37							12597.5	12495.0	16824.5	16701.5			22394.5	22302.5		
38							12598.0	12495.5	16825.0	16702.0			22395.0	22303.0		
39							12598.5	12496.0	16825.5	16702.5			22395.5	22303.5		
40							12599.0	12496.5	16826.0	16703.0			22396.0	22304.0		
41							12599.5	12497.0	16826.5	16703.5			22396.5	22304.5		
42							12600.0	12497.5	16827.0	16704.0			22397.0	22305.0		
43							12600.5	12498.0	16827.5	16704.5			22397.5	22305.5		
44							12601.0	12498.5	16828.0	16705.0			22398.0	22306.0		
45							12601.5	12499.0	16828.5	16705.5			22398.5	22306.5		

46						12602.0	12499.5	16829.0	16706.0			22399.0	22307.0		
47						12602.5	12500.0	16829.5	16706.5			22399.5	22307.5		
48						12603.0	12500.5	16830.0	16707.0			22400.0	22308.0		
49						12603.5	12501.0	16830.5	16707.5			22400.5	22308.5		
50						12604.0	12501.5	16831.0	16708.0			22401.0	22309.0		
51						12604.5	12502.0	16831.5	16708.5			22401.5	22309.5		
52						12605.0	12502.5	16832.0	16709.0			22402.0	22310.0		
53						12605.5	12503.0	16832.5	16709.5			22402.5	22310.5		
54						12606.0	12503.5	16833.0	16710.0			22403.0	22311.0		
55						12606.5	12504.0	16833.5	16710.5			22403.5	22311.5		
56						12607.0	12504.5	16834.0	16711.0			22404.0	22312.0		
57						12607.5	12505.0	16834.5	16711.5			22404.5	22312.5		
58						12608.0	12505.5	16835.0	16712.0			22405.0	22313.0		
59						12608.5	12506.0	16835.5	16712.5			22405.5	22313.5		
60						12609.0	12506.5	16836.0	16713.0			22406.0	22314.0		
61						12609.5	12507.0	16836.5	16713.5			22406.5	22314.5		
62						12610.0	12507.5	16837.0	16714.0			22407.0	22315.0		
63						12610.5	12508.0	16837.5	16714.5			22407.5	22315.5		
64						12611.0	12508.5	16838.0	16715.0			22408.0	22316.0		
65						12611.5	12509.0	16838.5	16715.5			22408.5	22316.5		
66						12612.0	12509.5	16839.0	16716.0			22409.0	22317.0		
67						12612.5	12510.0	16839.5	16716.5			22409.5	22317.5		
68						12613.0	12510.5	16400.0	16717.0			22410.0	22318.0		
69						12613.5	12511.0	16400.5	16717.5			22410.5	22318.5		
70						12614.0	12511.5	16411.0	16718.0			22411.0	22319.0		
71						12614.5	12512.0	16841.5	16718.5			22411.5	22319.5		
72						12615.0	12512.5	16842.0	16719.0			22412.0	22320.0		
73						12615.5	12513.0	16842.5	16719.5			22412.5	22320.5		
74						12616.0	12513.5	16843.0	16720.0			22413.0	22321.0		
75						12616.5	12514.0	16843.5	16720.5			22413.5	22321.5		
76						12617.0	12514.5	16844.0	16721.0			22414.0	22322.0		
77						12617.5	12515.0	16844.5	16721.5			22414.5	22322.5		
78						12618.0	12515.5	16845.0	16722.0			22415.0	22323.0		
79						12618.5	12516.0	16845.5	16722.5			22415.5	22323.5		
80						12619.0	12516.5	16846.0	16723.0			22416.0	22324.0		
81						12619.5	12517.0	16846.5	16723.5			22416.5	22324.5		
82						12620.0	12517.5	16847.0	16724.0			22417.0	22325.0		
83						12620.5	12518.0	16847.5	16724.5			22417.5	22325.5		
84						12621.0	12518.5	16848.0	16725.0			22418.0	22326.0		
85						12621.5	12519.0	16848.5	16725.5			22418.5	22326.5		
86						12622.0	12519.5	16849.0	16726.0			22419.0	22327.0		
87								16849.5	16726.5			22419.5	22327.5		
88						12622.5	12520.5	16850.0	16727.0			22420.0	22328.0		
89						12623.0	12521.0	16850.5	16727.5			22420.5	22328.5		
90						12623.5	12521.5	16851.0	16728.0			22421.0	22329.0		
91						12624.0	12522.0	16851.5	16728.5			22421.5	22329.5		
92						12624.5	12522.5	16852.0	16729.0			22422.0	22330.0		
93						12625.0	12523.0	16852.5	16729.5			22422.5	22330.5		
94						12625.5	12523.5	16853.0	16730.0			22423.0	22331.0		
95						12626.0	12524.0	16853.5	16730.5			22423.5	22331.5		

Ch. no.	Paired frequencies for NBDP and data transmissions (kHz)															
	4 MHz		6 MHz		8 MHz		12 MHz		16 MHz		18/19 MHz		22 MHz		25/26 MHz	
	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship	Coast	Ship
96							12626.5	12524.5	16854.0	16731.0			22424.0	22332.0		
97							12627.0	12525.0	16854.5	16731.5			22424.5	22332.5		
98							12627.5	12525.5	16855.0	16732.0			22425.0	22333.0		
99							12628.0	12526.0	16855.5	16732.5			22425.5	22333.5		
100							12628.5	12526.5	16856.0	16733.0			22426.0	22334.0		
101							12629.0	12527.0	16856.5	16733.5			22426.5	22334.5		
102							12629.5	12527.5	16857.0	16739.0						
103							12630.0	12528.0	16857.5	16739.5						
104							12630.5	12528.5	16858.0	16740.0						
105							12631.0	12529.0	16858.5	16740.5						
106							12631.5	12529.5	16859.0	16741.0						
107							12632.0	12530.0	16859.5	16741.5						
108									16860.0	16742.0						
109									16860.5	16742.5						
110									16861.0	16743.0						
111									16861.5	16743.5						
112									16862.0	16744.0						
113									16862.5	16744.5						
114									16863.0	16745.0						
115									16863.5	16745.5						
116									16864.0	16746.0						
117									16864.5	16746.5						
118									16865.0	16747.0						
119									16865.5	16747.5						
120									16866.0	16748.0						
121									16866.5	16748.5						
122									16867.0	16749.0						
123									16867.5	16749.5						
124									16868.0	16750.0						
125									16868.5	16750.5						
126									16869.0	16751.0						
127									16869.5	16751.5						
128									16870.0	16752.0						
129									16870.5	16752.5						
130									16871.0	16753.0						
131									16871.5	16753.5						
132									16872.0	16754.0						

(b) The following table describes the frequencies and Channel Series with F1B, J2B, or J2D emission which are assignable to ship stations for NBDP and data transmissions with other ship stations and public coast stations. Public coast stations may receive only on these frequencies.

NON-PAIRED NBDP CHANNELS (KHZ)

Channel series:								
1	4202.5	6300.5	8396.5	12560.0	16785.0	18893.0	22352.0	25193.0
2	4203.0	6301.0	8397.0	12560.5	16785.5	18893.5	22352.5	25193.5
3	4203.5	6301.5	8397.5	12561.0	16786.0	18894.0	22353.0	25194.0
4	4204.0	6302.0	8398.0	12561.5	16786.5	18894.5	22353.5	25194.5
5	4204.5	6302.5	8398.5	12562.0	16787.0	18895.0	22354.0	25195.0
6	4205.0	6303.0	8399.0	12562.5	16787.5	18895.5	22354.5	25195.5
7	4205.5	6303.5	8399.5	12563.0	16788.0	18896.0	22355.0	25196.0
8	4206.0	6304.0	8400.0	12563.5	16788.5	18896.5	22355.5	25196.5
9	4206.5	6304.5	8400.5	12564.0	16789.0	18897.0	22356.0	25197.0
10	4207.0	6305.0	8401.0	12564.5	16789.5	18897.5	22356.5	25197.5
11	.....	6305.5	8401.5	12565.0	16790.0	18898.0	22357.0	25198.0
12	.....	6306.0	8402.0	12565.5	16790.5	.....	22357.5	25198.5
13	.....	6306.5	8402.5	12566.0	16791.0	.....	22358.0	25199.0
14	.....	6307.0	8403.0	12566.5	16791.5	.....	22358.5	25199.5
15	.....	6307.5	8403.5	12567.0	16792.0	.....	22359.0	25200.0
16	.....	6308.0	8404.0	12567.5	16792.5	.....	22359.5	25200.5
17	.....	6308.5	8404.5	12568.0	16793.0	.....	22360.0	25201.0
18	.....	6309.0	8405.0	12568.5	16793.5	.....	22360.5	25201.5
19	.....	6309.5	8405.5	12569.0	16794.0	.....	22361.0	25202.0
20	.....	6310.0	8406.0	12569.5	16794.5	.....	22361.5	25202.5
21	.....	6310.5	8406.5	12570.0	16795.0	.....	22362.0	25203.0
22	.....	6311.0	8407.0	12570.5	16795.5	.....	22362.5	25203.5
23	.....	6311.5	8407.5	12571.0	16796.0	.....	22363.0	25204.0
24	.....	.....	8408.0	12571.5	16796.5	.....	22363.5	25204.5
25	.....	.....	8408.5	12572.0	16797.0	.....	22364.0	25205.0
26	.....	.....	8409.0	12572.5	16797.5	.....	22364.5	25205.5
27	.....	.....	8409.5	12573.0	16798.0	.....	22365.0	25206.0
28	.....	.....	8410.0	12573.5	16798.5	.....	22365.5	25206.5
29	.....	.....	8410.5	12574.0	16799.0	.....	22366.0	25207.0
30	.....	.....	8411.0	12574.5	16799.5	.....	22366.5	25207.5
31	.....	.....	8411.5	12575.0	16800.0	.....	22367.0	25208.0
32	.....	.....	8412.0	12575.5	16800.5	.....	22367.5	.....
33	.....	.....	8412.5	12576.0	16801.0	.....	22368.0	.....
34	.....	.....	8413.0	12576.5	16801.5	.....	22368.5	.....
35	.....	.....	8413.5	.....	16802.0	.....	22369.0	.....
36	.....	.....	8414.0	.....	16802.5	.....	22369.5	.....
37	.....	.....	.....	.....	16803.0	.....	22370.0	.....
38	.....	.....	.....	.....	16803.5	.....	22370.5	.....
39	.....	.....	.....	.....	16804.0	.....	22371.0	.....
40	.....	.....	.....	.....	.....	.....	22371.5	.....
41	.....	.....	.....	.....	.....	.....	22372.0	.....
42	.....	.....	.....	.....	.....	.....	22372.5	.....
43	.....	.....	.....	.....	.....	.....	22373.0	.....
44	.....	.....	.....	.....	.....	.....	22373.5	.....
45	.....	.....	.....	.....	.....	.....	22374.0	.....

(c) *Distress and calling*. The frequencies 2174.5 kHz, 4177.5 kHz, 6268.0 kHz, 8376.5 kHz, 12520.0 kHz, and 16695.0 kHz may be used for NBDP and data transmissions by coast and ship stations on a simplex basis for distress and safety purposes.

(d) The frequencies in the 156–162 MHz band available for assignment to public coast stations that are contained in § 80.371(c) of this part are also available for radioprinter and data communications between ship and coast stations using F1B, F2B, F1D, or F2D emission.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 9890, Mar. 8, 1991; 57 FR 43407, Sept. 21, 1992; 58 FR 16504, Mar. 29, 1993; 68 FR 46969, Aug. 7, 2003]

§ 80.363 Frequencies for facsimile.

(a) The non-paired frequencies with F1C, F3C, J2C or J3C emission which are assignable to ship and public coast stations for facsimile are as follows:

(1) *Ship station frequencies*. The following frequencies are available for use

by authorized ship stations for facsimile.

ASSIGNABLE SHIP FREQUENCIES FOR FACSIMILE (KHZ)

2070.5	4154	6235	8302	12370	16551	18848	22182	25123
2072.5	4170	6259	8338	12418	16615	18868	22238	25159
2074.5	.....	.....	.....	.....	.....	.....	.....	.....
2076.5	.....	.....	.....	.....	.....	.....	.....	.....

(2) *Coast station frequencies.* The following table describes the exclusive maritime mobile HF frequency bands that are available for assignment to coast stations using 3 kHz channels for facsimile. However, any frequency in the 2000–27500 kHz bands listed in part 2 of the Commission's Rules as available for shared use by the maritime mobile service and other radio services, except for the 4000–4063 kHz and the 8100–8195 kHz bands, is available for assignment to coast stations for facsimile. Frequency assignments are subject to coordination with government users.

FREQUENCY BANDS FOR COAST FACSIMILE (KHZ)

4221.0– 4351.0	16904.5–17242.0
6332.5– 6501.0	19705.0–19755.0
8438.0– 8707.0	22445.5–22696.0
12658.5–13077.0	26122.5–26145.0

(b) The frequencies in the 156–162 MHz band available for assignment to public coast stations that are contained in § 80.371(c) of this part are also available for facsimile communications between ship and coast stations using F2C or F3C emission.

(c) The frequency 156.425 MHz is assigned by rule to private coast stations and ship stations in Alaska for ship-to-shore and ship-to-ship facsimile transmissions using F2C or F3C emissions.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40059, Sept. 29, 1989; 56 FR 9893, Mar. 8, 1991; 57 FR 43407, Sept. 21, 1992; 62 FR 40307, July 28, 1997; 68 FR 46970, Aug. 7, 2003]

RADIOTELEPHONY

§ 80.365 Scope.

The following sections describe the carrier frequencies and general conditions of use for the following types of radiotelephony:

—Distress, urgency, safety, call and reply.
—Working.
—Public.
—Private.

§ 80.367 General uses—radiotelephony.

(a) Ship stations communicating with foreign coast stations may operate on any frequency designated by that coast station.

(b) Radiotelephony stations communicating with a Government station may transmit on a Government frequency when authorized to do so by the Government station or agency if the emission, bandwidth and frequency tolerance of the maritime station are within the same limits as the Government station.

(c) Frequencies assigned to Government radio stations are assignable to non-Government maritime stations for radiotelephony communications with other non-Government stations in connection with activities performed in coordination with or on behalf of the Government.

(d) Frequencies in the 2000–27500 kHz band will be authorized only to ship stations that in addition are authorized to use frequencies in the 156–162 MHz band.

(e) Frequencies in the 2000–2850 kHz band will be authorized to private coast stations that in addition are authorized to use frequencies in the 156–162 MHz band.

(f) Ship and coast stations authorized to use frequencies in both the 2000–27500 kHz and 156–162 MHz bands must not use frequencies in the 2000–27500 kHz band for communications with any other station which is within the VHF service range.

(g) Coast and ship station radiotelephone working frequencies are available for DSC general purpose calling under the provisions of § 80.207(a).

(h) Digital selective calling techniques are not authorized on the frequencies 2182 kHz or 156.800 MHz.

§ 80.369 Distress, urgency, safety, call and reply frequencies.

This section describes the general uses and frequencies assignable to maritime stations for distress, urgency, safety, call and reply radiotelephony communications.

(a) In the 1605–3500 kHz band, the frequency 2182 is an international radiotelephony distress, urgency and safety frequency for ship stations, public and private coast stations, and survival craft stations. It is also used for call and reply by ship stations on a primary basis and by public coast stations on a secondary basis. The carrier frequency 2191 kHz may be used as a supplementary calling frequency in areas of heavy usage of 2182 kHz. All stations must use J3E emission when operating on 2182 and 2191 kHz, except that:

(1) H3E emission may be used on 2182 kHz for communications with foreign coast and ship stations; or,

(2) A3E emission may be used on 2182 kHz by portable survival craft stations, or transmitters authorized for use prior to January 1, 1972. See § 80.203(c).

(b) The frequencies 4125.0 kHz, 6215 kHz, 8291 kHz, 12290 kHz, and 16420 kHz may be used by coast and ship stations on a simplex basis for distress and safety communications. The frequency 4125.0 kHz may also be used for distress and safety communications between aircraft and maritime mobile stations.

(c) The frequency 5167.5 kHz is available to any station for emergency communications in the State of Alaska. Peak envelope power of stations operating on this frequency must not exceed 150 watts. This frequency may also be used by Alaska private fixed stations for calling and listening, but only for establishing communication.

(d) In the 4000–27500 kHz band, the following coast frequencies are available for assignment to public coast stations for call and reply communications. The paired ship frequencies are available for use by authorized ship stations.

CALL AND REPLY FREQUENCY PAIRS IN THE 4000–27500 kHz

Carrier Frequencies (kHz)		
Channel No.	Ship transmit	Coast transmit
421	[1 2 3] 4125	[1] 4417
606	[2 3] 6215	[1] 6516
821	8255	8779
1221	[3] 12290	13137
1621	[3] 16420	17302
1806	18795	19770
2221	22060	22756
2510	25097	26172

[1] The frequencies 4125 kHz, 4417 kHz, and 6516 kHz are also available on a simplex basis for private communications, see § 80.373(c) of this part.

[2] The frequencies of 4125 kHz and 6215 kHz are also available on a simplex basis to ship and coast stations for call and reply, provided that the peak envelope power does not exceed 1 kW.

[3] The frequencies 4125 kHz, 6215 kHz, 8291 kHz, 12290 kHz, and 16420 kHz are also available on a simplex basis for distress and safety traffic, see paragraph (b) of this section.

(e) In the 120–156 MHz band the following frequencies are used as indicated:

(1) The frequencies 121.500 MHz and 123.100 MHz using A3E emission are available for scene of action search and rescue operations to ship, coast and aircraft stations. Communications in support of search and rescue operations must employ the frequency 121.500 MHz only when communications on 123.100 MHz or other VHF frequencies is not practicable. Ship, coast and aircraft stations engaged in such communications on 121.500 MHz must shift to 123.100 MHz as soon as possible.

(2) The frequency 156.525 MHz is available for intership, ship and coast general purpose, distress and safety DSC calls.

(3) The frequency 156.800 MHz is the international radiotelephone distress, urgency, safety, call and reply frequency for ship, public and private coast stations. Stations operating on 156.800 MHz must be able to transmit and receive using G3E emission.

(4) The frequency 156.450 MHz (channel 9) is available for intership, ship and coast station general purpose calling by noncommercial vessels, such as recreational boats. Distress, urgency and safety calls should initially be made on 156.800 MHz (channel 16) or, if

equipped with DSC, on 156.525 MHz (channel 70).

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 54 FR 49995, Dec. 4, 1989; 56 FR 9893, Mar. 8, 1991; 57 FR 19552, May 7, 1992]

§ 80.371 Public correspondence frequencies.

This section describes the radiotelephony working frequencies assignable to ship and public coast stations.

(a) *Working frequencies in the 2000–4000 kHz band*. The following table describes the working carrier frequency pairs in the 2000–4000 kHz band.

Working frequency pairs in the 2000–4000 kHz band

Region	Carrier frequency (kHz)	
	Ship transmit	Coast transmit
East Coast:	2031.5	2490.0
	2118.0	[1] 2514.0
	2126.0	2522.0
	2142.0	2538.0
	2166.0	2558.0
	2198.0	2590.0
	2366.0	2450.0
	2382.0	[5] 2482.0
	2390.0	2566.0
	2400.0	2400.0
	2406.0	2442.0
	2406.0	[4] 2506.0
West Coast:	2003.0	2450.0
	2009.0	2442.0
	2009.0	2566.0
	2031.5	2566.0
	2126.0	2522.0
	2206.0	2598.0
	2382.0	2466.0
	2406.0	2506.0
	2430.0	[5] 2482.0
Gulf Coast:	2009.0	2466.0
	2134.0	2530.0
	2142.0	2538.0
	[1] 2158.0	[1] 2550.0
	2166.0	2558.0
	2206.0	2598.0
	2366.0	2450.0
	2382.0	[5] 2482.0
	2430.0	2572.0
	2458.0	2506.0
Great Lakes [2]:	2118.0	2514.0
	2158.0	2550.0
	2206.0	2582.0
Alaska	2131.0	[5] 2309.0
	2134.0	2312.0
	2237.0	2397.0
	2240.0	2400.0
Hawaii	2134.0	2530.0
Caribbean:	2009.0	2506.0
	[3] 2086.0	2585.0
	2134.0	2530.0
Guam	2009.0	2506.0

[1] Unlimited hours of use from December 15 to April 1 and day only from April 1 to December 15. Harmful interference must not be caused to any station in the Great Lakes region.

[2] In the Great Lakes region 2206 kHz is not available for transmission to U.S. ships except in the case of distress. U.S. coast stations in the Great Lakes area may use 2514, 2550 and 2582 kHz on a shared basis with coast stations of Canada. Except in the case of distress, the frequency 2550 kHz must not be used for transmission to ship stations of Canada since the associated ship station transmit frequency 2158 kHz is not available to Canadian ship stations for transmission and 2582 kHz must not be used for public correspondence transmissions to U.S. ship stations since the associated ship transmit frequency 2206 kHz is not available to U.S. ship stations for transmissions except in the case of distress.

[3] Limited to a peak envelope power of 150 watts.

[4] Harmful interference must not be caused to any coast station in the Caribbean region.

[5] *But see* section 80.373(c)(3) of this chapter.

(b) *Working frequencies in the 4000–27500 kHz band*. This paragraph describes the working carrier frequencies in the 4000–27500 kHz band. With respect to frequencies that are assignable in more than one geographical area, once the frequency is assigned to one licensee, any subsequent license will be authorized on a secondary, non-interference basis with respect to the incumbent license's existing operation. If the first licensee later seeks authorization to operate in an additional geographic area, such authorization will be on a secondary, non-interference basis to other co-channel licensees.

(1) The following table specifies the carrier frequencies available for assignment to public coast stations. The paired ship frequencies are available for use by authorized ship stations. The specific frequency assignment available to public coast stations for a particular geographic area is indicated by an ''x'' under the appropriate column. The allotment areas are in accordance with the ''Standard Defined Areas'' as identified in the International Radio Regulations, Appendix 25 Planning System, and indicated in the preface to the International Frequency List (IFL).

WORKING CARRIER FREQUENCY PAIRS IN THE 4000–27500 KHZ BAND

Channel	Ship transmit	Coast transmit	USA-E	USA-W	USA-S	USA-C	VIR	HWA	ALS	PTR	GUM
401	4065	4357	x	x	x	x	.....	.....	.....	.....	.....
403	4071	4363	x	x	x	x	.....	x	.....	x	.....

WORKING CARRIER FREQUENCY PAIRS IN THE 4000–27500 kHz BAND—Continued

Channel	Ship transmit	Coast transmit	USA-E	USA-W	USA-S	USA-C	VIR	HWA	ALS	PTR	GUM
404	4074	4366	x	x		x			x		
405	4077	4369	x	x	x	x		x	x		
409	4089	4381	x	x	x	x					
410	4092	4384	x								x
411	4095	4387	x	x		x					
412	4098	4390	x	x	x						
414	4104	4396	x		x				x	x	
416	4110	4402	x	x		x			x		
417	4113	4405	x	x	x	x					
418	4116	4408				x		x			
419	4119	4411		x	x			x		x	x
422	4128	4420	x	x					x		
423	4131	4423	x	x	x	x			x		
424	4134	4426				x					
427	4143	4435	x	x	x	x	x	x	x		
428	4060	4351			x						
604	6209	6510	x	x	x	x		x	x	x	x
605	6212	6513				x					
607	6218	6519			x						
802	8198	8722	x		x			x	x		
803	8201	8725				x					
804	8204	8728	x	x	x						
805	8207	8731	x	x	x						
807	8213	8737				x					
808	8216	8740	x	x				x	x		x
809	8219	8743	x	x							
810	8222	8746	x	x	x						
811	8225	8749	x	x	x						
814	8234	8758	x	x	x	x		x	x		
815	8237	8761	x	x	x						
817	8243	8767				x					
819	8249	8773				x					
822	8258	8782	x	x	x						
824	8264	8788	x	x	x						
825	8267	8791	x	x	x						
826	8270	8794	x			x					x
829	8279	8803	x	x	x					x	
830	8282	8806			x					x	
831	8285	8809		x	x					x	
836	8113	8713			x						
837	8128	8716			x						
1201	12230	13077	x	x	x						
1202	12233	13080	x	x	x	x					
1203	12236	13083	x	x	x	x		x	x		
1206	12245	13092	x	x	x						
1208	12251	13098	x		x						
1209	12254	13101	x	x	x				x		
1210	12257	13104	x	x	x						x
1211	12260	13107	x	x	x	x			x		
1212	12263	13110	x		x			x	x	x	
1215	12272	13119		x	x					x	
1217	12278	13125				x					
1222	12293	13140						x			
1223	12296	13143	x	x	x						x
1225	12302	13149	x		x						
1226	12305	13152	x	x	x						
1228	12311	13158	x	x		x					
1229	12314	13161		x							
1230	12317	13164	x	x	x			x			
1233	12326	13173			x						
1234	12329	13176		x	x			x	x		
1235	12232	13179			x						
1236	12335	13182			x						
1237	12338	13185	x		x	x	x				
1601	16360	17242	x		x			x	x		
1602	16363	17245	x	x	x						
1603	16366	17248	x	x	x				x		
1605	16372	17254	x	x							
1607	16378	17260	x	x	x				x		
1609	16384	17266	x	x	x						
1610	16387	17269	x	x	x						

WORKING CARRIER FREQUENCY PAIRS IN THE 4000–27500 kHz BAND—Continued

Channel	Ship transmit	Coast transmit	USA-E	USA-W	USA-S	USA-C	VIR	HWA	ALS	PTR	GUM
1611	16390	17272	x	x	x						
1616	16405	17287	x	x	x			x	x		
1620	16417	17299	x			x					
1624	16429	17311	x	x	x						
1626	16435	17317	x								
1631	16450	17332	x								
1632	16453	17335	x	x	x				x		
1641	16480	17362	x	x	x						
1642	16483	17365	x	x	x	x	x	x	x	x	
1643	16486	17368			x						
1644	16489	17371	x	x	x	x		x	x		
1645	16492	17374			x						
1646	16495	17377		x							
1647	16498	17380	x	x	x	x			x		
1648	16501	17383		x		x	x	x	x	x	
1801	18780	19755	x	x	x	x	x	x	x	x	
1802	18783	19758	x		x	x	x			x	
1803	18786	19761	x	x		x	x	x	x	x	
1804	18789	19764		x	x			x	x		
1805	18792	19767		x					x		
1807	18798	19773			x						
1808	18801	19776	x	x	x	x	x	x	x	x	
2201	22000	22696	x	x	x						x
2205	22012	22708	x	x	x						
2210	22027	22723	x								
2214	22039	22735	x	x	x						
2215	22042	22738	x	x	x						
2216	22045	22741	x		x						x
2222	22063	22759	x								
2223	22066	22762	x	x	x			x	x	x	
2227	22078	22774	x	x	x						
2228	22081	22777	x	x							
2231	22090	22786	x	x	x				x		
2236	22105	22801	x	x							
2237	22108	22804	x	x	x						
2241	22120	22816	x	x	x	x	x	x	x	x	
2242	22123	22819			x						
2243	22126	22822	x	x	x	x	x	x	x	x	
2244	22129	22825		x				x	x		
2245	22132	22828		x	x			x	x		
2246	22135	22831			x						
2247	22138	22834	x	x	x	x	x	x	x		
2501	25070	26145	x	x	x	x		x	x		
2502	25073	26148	x	x	x	x	x	x	x	x	
2503	25076	26151			x						
2504	25079	26154	x	x	x	x	x	x	x	x	

(2) The following table specifies the non-paired carrier frequencies that are available for assignment to public coast stations for simplex operations. These frequencies are available for use by authorized ship stations for transmissions to coast stations (simplex operations). Assignments on these frequencies must accept interference. They are shared with government users and are considered ''common use'' frequencies under the international Radio Regulations. They cannot be notified for inclusion in the Master International Frequency Register, which provides stations with interference protection, but may be listed in the international List of Coast Stations. (*See* Radio Regulation No. 1220 and Recommendation 304.)

PUBLIC CORRESPONDENCE SIMPLEX

[Non-paired radiotelephony frequencies in the 4000–27500 kHz Band [1] Carrier Frequencies (kHz)]

16537 [2]	18825	22174	25100
16540	18828	22177	25103
	18831		25106
	18834		25109
	18837		25112

[1] Coast stations limited to a maximum transmitter power of 1 kW (PEP).

[2] The alternative carrier frequency 16537 kHz may be used by ship stations and coast stations for calling on a simplex basis, provided that the peak envelope power does not exceed 1 kW.

(c) *Working frequencies in the marine VHF 156–162 MHz band.* (1)(i) The frequency pairs listed in this paragraph are available for assignment to public coast stations for communications with ship stations and units on land.

WORKING CARRIER FREQUENCY PAIRS IN THE 156–162 MHZ BAND [1]

Channel designator	Carrier Frequency (MHz)	
	Ship transmit	Coast transmit
24	157.200	161.800
84	157.225	161.825
25 [5]	157.250	161.850
85 [2]	157.275	161.875
26	157.300	161.900
86	157.325	161.925
27	157.350	161.950
87 [3]	157.375	161.975
28	157.400	162.000
88 [4]	157.425	162.025

[1] For special assignment of frequencies in this band in certain areas of Washington State, the Great Lakes and the east coast of the United States pursuant to arrangements between the United States and Canada, see subpart B of this part.

[2] The frequency pair 157.275/161.875 MHz is available on a primary basis to ship and public coast stations. In Alaska it is also available on a secondary basis to private mobile repeater stations.

[3] The frequency 161.975 MHz is available only for Automatic Identification System communications. No license authorizing a site-based VHF Public Coast Station or a Private Land Mobile Radio Station to operate on the frequency 161.975 MHz in VHF Public Coast Service Areas (VPCSAs) 1–9 will be renewed unless the license is or has been modified to remove frequency 161.975 MHz as an authorized frequency. In VPCSAs 10–42, site-based stations licensed to operate on frequency 161.975 MHz prior to March 2, 2009 may continue to operate on a co-primary basis on that frequency until March 2, 2024. Licenses authorizing geographic stations to operate on frequency 161.975 MHz will be modified on March 2, 2011 to replace the frequency with either frequency pair 157.225/161.825 MHz (VPCSAs 10–15, 23–30, 33–34, 36–39, and 41–42) or frequency pair 157.275/161.875 MHz (VPCSAs 16–22, 31–32, 35, and 40), unless an application to so modify the license is granted before that date.

[4] The frequency 162.025 MHz is available only for Automatic Identification System communications. One hundred twenty kilometers (75 miles) from the United States/Canada border, the frequency 157.425 MHz is available for intership and commercial communications. Outside the Puget Sound area and its approaches and the Great Lakes, 157.425 MHz is available for communications between commercial fishing vessels and associated aircraft while engaged in commercial fishing activities.

[5] In VPCSAs 10–42, the working carrier frequency pair 157.250/161.850 MHz (Channel 25) is not available for assignment under part 80.

(ii) Service areas in the marine VHF 156–162 MHz band are VHF Public Coast Service Areas (VPCSAs). As listed in the table in this paragraph, VPCSAs are based on, and composed of one or more of, the U.S. Department of Commerce's 172 Economic Areas (EAs). *See* 60 FR 13114 (March 10, 1995). In addition, the Commission shall treat Guam and the Northern Mariana Islands, Puerto Rico and the United States Virgin Islands, American Samoa, and the Gulf of Mexico as EA-like areas, and has assigned them EA numbers 173–176, respectively. Maps of the EAs and VPCSAs are available for public inspection and copying at the FCC Public Reference Room, Room CY–A257, 445 12th Street, SW., Washington, DC 20554, 1–888–225–5322. In addition to the EAs listed in the table in this paragraph, each VPCSA also includes the adjacent waters under the jurisdiction of the United States. In VPCSAs 10–42, the working carrier frequency pair 157.250 MHz/161.850 MHz (Channel 25) is not available for assignment under part 80.

VHF Public coast station areas (VPCSAs)

VPCSAs	EAs
1 (Northern Atlantic)	1–5, 10
2 (Mid-Atlantic)	9, 11–23, 25, 42, 46
3 (Southern Atlantic)	24, 26–34, 37, 38, 40, 41, 174
4 (Mississippi River)	34, 36, 39, 43–45, 47–53, 67–107, 113, 116–120, 122–125, 127, 130–134, 176
5 (Great Lakes)	6–8, 54–66, 108, 109
6 (Southern Pacific)	160–165
7 (Northern Pacific)	147, 166–170
8 (Hawaii)	172, 173, 175
9 (Alaska)	171
10 (Grand Forks)	110
11 (Minot)	111
12 (Bismarck)	112
13 (Aberdeen)	114
14 (Rapid City)	115
15 (North Platte)	121
16 (Western Oklahoma)	126
17 (Abilene)	128
18 (San Angelo)	129
19 (Odessa-Midland)	135
20 (Hobbs)	136
21 (Lubbock)	137
22 (Amarillo)	138
23 (Santa Fe)	139
24 (Pueblo)	140
25 (Denver-Boulder-Greeley)	141
26 (Scottsbluff)	142
27 (Casper)	143
28 (Billings)	144
29 (Great Falls)	145
30 (Missoula)	146
31 (Idaho Falls)	148
32 (Twin Falls)	149
33 (Boise City)	150
34 (Reno)	151
35 (Salt Lake City-Ogden)	152
36 (Las Vegas)	153
37 (Flagstaff)	154
38 (Farmington)	155
39 (Albuquerque)	156
40 (El Paso)	157
41 (Phoenix-Mesa)	158
42 (Tucson)	159

(iii) Subject to paragraph (c)(3) of this section, each licensee may also operate on 12.5 kHz offset frequencies in areas where the licensee is authorized

on both frequencies adjacent to the offset frequency, and in areas where the licensee on the other side of the offset frequency consents to the licensee's use of the adjacent offset frequency. Coordination with Canada is required for offset operations under any circumstance in which operations on either adjoining 25 kHz channel would require such coordination. *See* § 80.57 of this part.

(2) Any recovered channel pairs will revert automatically to the holder of the VPCSA license within which such channels are included, except the channel pairs listed in the table in paragraph (c)(1)(i) of this section. Those channel pairs, and any channel pairs recovered where there is no VPCSA licensee, will be retained by the Commission for future licensing.

(e) Canada/U.S.A. channeling arrangement frequencies. The VHF frequencies assignable to ship and coast stations in the State of Washington and their usage limitations pursuant to the Canada/U.S.A. channeling arrangement are described in subpart B of this part.

(4) Subject to the requirements of § 1.924 of this chapter and § 80.21, each VPCSA licensee may place stations anywhere within its region without obtaining prior Commission approval provided:

(i) It provides to co-channel coast station incumbent licensees, and incumbent Private Land Mobile Radio licensees authorized under part 90 of this chapter on a primary basis, protection as defined in subpart P of this part. VPCSA licensees that share a common border may either distribute the available frequencies upon mutual agreement or request that the Commission assign frequencies along the common border.

(ii) The locations and/or technical parameters of the transmitters are such that individual coordination of the channel assignment(s) with a foreign administration, under applicable international agreements and rules in this part, is not required.

(iii) For any construction or alteration that would exceed the requirements of § 17.7 of this chapter, licensees must notify the appropriate Regional Office of the Federal Aviation Administration (FAA Form 7460–1) and file a request for antenna height clearance and obstruction marking and lighting specifications (FCC Form 854) with the FCC, Attn: Information Processing Branch, 1270 Fairfield Rd., Gettysburg, PA 17325–7245.

(iv) The transmitters must not have a significant environmental effect as defined by §§ 1.1301 through 1.1319 of this chapter.

(d) *Working frequencies in the Mississippi River System.* The Mississippi River System includes the Mississippi River and connecting navigable waters other than the Great Lakes. The following simplex frequencies are available for assignment to public coast stations serving the Mississippi River System for radiotelephony communications. These simplex frequencies also are available for use by authorized ship stations within communication service range, whether or not the ship is operating within the confines of the Mississippi River System.

MISSISSIPPI RIVER SYSTEM WORKING FREQUENCIES; CARRIER FREQUENCIES (KHZ)

2086 [1]	4065	6209	8201	12362	16543
2782	4089	6212	8213	12365	16546
	4116	6510	8725	.....	.....
	4408	6513	8737	.....	.....

[1] Limited to a maximum transmitter output of 150 watts (PEP).

(e) *Canada/U.S.A. channeling arrangement frequencies.* The VHF frequencies assignable to ship and coast stations in the State of washington and their usage limitations purusant to the Canada/U.S.A. channeling arrangement are described in subpart B of this part.

[51 FR 31213, Sept. 2, 1986]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 80.371, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 80.373 Private communications frequencies.

This section describes the carrier frequencies assignable for ship-to-ship and ship-to-coast private communications.

(a) *Special requirements for private coast stations.* Assignment to private coast stations of radiotelephony frequencies in the 2000–27500 kHz band are subject to the following:

(1) Private coast stations must use J3E emission.

(2) On 2182 kHz, private coast stations must be capable of receiving J3E and H3E emissions.

(3) Except in the Mississippi River System and Great Lakes, private coast stations serving lakes or rivers are not authorized on the 2000–2850 kHz band.

(4) Private coast stations may use DSC for calling on their assigned frequencies in the 2000–27500 kHz band and on those frequencies in the 156–162 MHz band which are allocated for maritime control, commercial and non-commercial communications.

(b) Frequencies in the 2000–27500 kHz band for intership safety and other communications. This paragraph describes the geographic areas of operation and the frequencies and limitations in the band available for assignment for intership safety and operational simplex radiotelephone communications.

(1) *Frequencies avaiable.*

Carrier frequency (kHz)	Geographic area
2003.0	Great Lakes only.
2082.5 [1] [2]	All areas.
2093.0 [1]	All areas.
2142.0	Pacific coast areas south of 42 degrees north on a day basis only.
2203.0 [2]	Gulf of Mexico.
2214.0 [1]	All areas.
2638.0 [1]	All areas.
2670.0	All areas.
2738.0 [1]	All areas except the Great Lakes.
2830.0	Gulf of Mexico only.

[1] Limited to a peak envelope power of 150 watts.
[2] Available on a secondary basis for intership communications by ships involved in non-commercial fishing.

(2) Except for 2093.0 kHz and 2214.0 kHz the frequencies shown in paragraph (b)(1) of this section are authorized primarily for intership safety communications in the indicated geographic area.

(3) Except for the frequencies 2093.0 kHz, 2214.0 kHz and 2670.0 kHz, the frequencies shown in paragraph (b)(1) of this section may be used on a non-interference basis to safety communications, for operational communications and, in the case of commercial transport ships and ships of municipal and state governments, for business communications.

(4) Ship stations may communicate with government coast stations on 2003.0 kHz about passage of vessels. Interference must not be caused to communications on the St. Lawrence Seaway and on the St. Mary's River.

(5) Ship stations may use 2670.0 kHz for communications with coast and ship stations of the U.S. Coast Guard. When a ship is not equipped to transmit on 2670.0 kHz or in the band 156–162 MHz the frequency 2003.0 kHz may be used on the Great Lakes for communications must not cause harmful interference to intership safety, operational and business communications.

(6) Navigational communications between ships and private coast stations may be exchanged on 2738.0 kHz and 2830.0 kHz. The frequencies 2214.0 kHz, 2738.0 kHz and 2830.0 kHz are assignable to private coast stations upon a showing that they need to communicate with commercial transport or Government ships. Private coast station applicants must show that public coast stations do not provide the required communications and harmful interference will not be caused to the intership use of these frequencies. The transmitter power must not exceed 150 watts. If 2214.0 kHz is authorized for ships, intership communication is also authorized. The geographic limitations to the frequencies 2738.0 kHz and 2830.0 kHz do not prohibit intership communication of less than 320 km (200 statute miles) when only one of the ship stations is within a permitted use geographic area.

(7) Private aircraft stations may communicate with ship stations on 2738.0 kHz and 2830.0 kHz if:

(i) The communications are limited to business or operational needs of the vessel while it is engaged in commercial fishing activities in the open sea or adjacent waters;

(ii) Harmful interference must not be caused to intership communications;

(iii) The maximum output power used for such communication must not exceed 25 watts;

(c) *Frequencies in the 2000–27500 kHz bands for business and operational communications.* (1) The following simplex frequencies in the 2000–27500 kHz band are available for assignment to private coast stations for business and operational radiotelephone communications. These simplex frequencies also are available for use by authorized ship

stations for business and operational radiotelephone communications.

BUSINESS AND OPERATIONAL FREQUENCIES IN THE 2000–27500 KHZ BAND; CARRIER FREQUENCIES (KHZ)

2065.0 [1] [3]	4146	6224	8294	12353	16528	18840	22159	25115
2079.0 [1] [3]	4149	6227	8297	12356	16531	18843	22162	25118
2096.5 [1]	4125 [2]	6230	.....	12359 [6]	16534	.....	22165	.....
3023.0 [4]	4417 [5]	6516	.....	.....	.....	.....	22168	.....
	5680 [4]	.....	.....	.....	.....	.....	22171	.....

[1] Limited to peak envelope power of 150 watts.
[2] The frequency 4125 kHz is also available for distress and safety, and calling and reply, see § 80.369 (b) and (d) of this part.
[3] The frequencies 2065.0 kHz and 2079.0 kHz must be coordinated with Canada.
[4] The frequencies 3023.0 kHz and 5680.0 kHz are available to private coast stations licensed to state and local governments and any scene-of-action ships for the purpose of search and rescue scene-of-action coordination including communications with any scene-of-action aircraft.
[5] The frequency 6516 kHz is limited to daytime operations. The frequencies 4417 kHz and 6516 kHz are also available for calling and reply, see § 80.369(d) of this part.
[6] The alternative carrier frequency 12359 kHz may be used by ship stations and coast stations for calling on a simplex basis, provided that the peak envelope power does not exceed 1 kW.

(2) Assignment of these frequencies is subject to the following general limitations:

(i) These frequencies are shared and are not available for the exclusive use of any station. No more than one frequency from each of the frequency bands will be authorized to a private station without justification;

(ii) The emissions must be J3E or J2D except that when DSC is used the emission must be F1B or J2B; and

(iii) Maximum transmitter output power is limited to 1 kW except as noted.

(3) In addition to the frequencies shown in paragraph (c)(1) of this section, the following coast transmit frequencies listed in the table in § 80.371(a) of this chapter are available for assignment to private coast stations and authorized ship stations for simplex business and operational radiotelephone communications: in the East Coast, West Coast, and Gulf Coast regions, 2482 kHz; in the Alaska region, 2309 kHz. These frequencies shall not be assigned to public coast stations before July 25, 2002. After that date, only the above frequencies in the above regions that have been assigned to at least one private coast station shall continue to be available for assignment to private coast stations. If, by that date, in any of the above regions, any of the above frequencies has not been assigned to a private coast station, that frequency in that region shall be available for assignment only to public coast stations.

(d) *Radioprinter frequencies.* (1) The following table describes the bands available for radioprinter simplex communications between ship and private coast stations:

FREQUENCY BANDS (KHZ)

2107–2170	4750–4850
2194–2495	5060–5450
2505–2850	5700–5950 [1]
3155–3400	7300–8100 [1]
4438–4650	

[1] After April 1, 2007, use of the sub-bands 5900–5950 kHz and 7300–7350 kHz shall be on the condition that harmful interference is not caused to HF broadcasting.

(2) Ship stations may conduct radioprinter communications with private coast stations on frequencies within these bands which are assigned to their associated private coast stations;

(3) Any alphanumeric code may be used; and

(4) The bandwidth of radioprinter communications on frequencies within these bands must not exceed 300 Hz.

(e) *Frequencies in the 2000–27500 kHz band for medical advisory communications.* (1) Private coast stations may be authorized to use any frequencies within the 2030–27500 kHz band that are allocated to Government and non-Government fixed or fixed and mobile radio services shown in the Commission's Table of Frequency Allocations contained in § 2.106 of this chapter for communications with ship stations to provide medical treatment information or advice. Assignment of these frequencies is subject to the following limitations:

(2) No protection is provided from harmful interference caused by foreign stations; and

(3) A private coast station must cease operations on a frequency that causes harmful interference to a foreign station.

(f) Frequencies in the 156–162 MHz band. The following tables describe the carrier frequencies available in the 156–162 MHz band for radiotelephone communications between ship and private coast stations. (NOTE: the letter ''A'' following the channel designator indicates simplex operation on a channel designated internationally as a duplex channel.)

FREQUENCIES IN THE 156–162 MHZ BAND

Channel designator	Carrier frequency (MHz) ship transmit	Carrier frequency (MHz) coast transmit	Points of communication (intership and between coast and ship unless otherwise indicated)
Port Operations			
01A [1]	156.050	156.050	
63A [1]	156.175	156.175	
05A [2]	156.250	156.250	
65A	156.275	156.275	
66A	156.325	156.325	
12 [3]	156.600	156.600	
73	156.675	156.675	
14 [3]	156.700	156.700	
74	156.725	156.725	
75 [18]	156.775	156.775	
76 [18]	156.825	156.825	
77 [4]	156.875		Intership only.
20A [12]	157.000		Intership only.
Navigational (Bridge-to-Bridge) [5]			
67 [7]	156.375	156.375	
13 [6]	156.650	156.650	
Commercial			
01A [1]	156.050	156.050	
63A [1]	156.175	156.175	
07A	156.350	156.350	
67 [7]	156.375		Intership only.
08	156.400		Do.
09	156.450	156.450	
10	156.500	156.500	
11 [3]	156.550	156.550	
72 [14]	156.625		Intership only.
18A	156.900	156.900	
19A	156.950	156.950	
79A	156.975	156.975	
80A	157.025	157.025	
88A [8]	157.425	157.425	
Digital Selective Calling			
70 [15]	156.525	156.525	
Noncommercial			
67 [14]	156.375		Intership only.
68 [17]	156.425	156.425	
09 [16]	156.450	156.450	
69	156.475	156.475	
71 [19]	156.575	156.575	
72	156.625		Intership only.
78A	156.925	156.925	
79A	156.975	156.975	Great Lakes only.
80A	157.025	157.025	Do.
Distress, Safety and Calling			
16	156.800	156.800	

FREQUENCIES IN THE 156–162 MHZ BAND—Continued

Channel designator	Carrier frequency (MHz) ship transmit	Carrier frequency (MHz) coast transmit	Points of communication (intership and between coast and ship unless otherwise indicated)
Intership Safety			
06	156.300		a. Intership, or b. For SAR: Ship and aircraft for the U.S. Coast Guard.
Environmental			
15 [13]		156.750	Coast to ship only.
Maritime Control			
17 [9] [10]	156.850	156.850	
Liaison and Safety Broadcasts, U.S. Coast Guard			
22A [11]	157.100	157.100	Ship, aircraft, and coast stations of the U.S. Coast Guard and at Lake Mead, Nev., ship and coast stations of the National Park Service, U.S. Department of the Interior.

[1] 156.050 MHz and 156.175 MHz are available for port operations and commercial communications purposes when used only within the U.S. Coast Guard designated Vessel Traffic Services (VTS) area of New Orleans, on the lower Mississippi River from the various pass entrances in the Gulf of Mexico to Devil's Swamp Light at River Mile 242.4 above head of passes near Baton Rouge.

[2] 156.250 MHz is available for port operations communications use only within the U.S. Coast Guard designated VTS radio protection areas of New Orleans and Houston described in § 80.383. 156.250 MHz is available for intership port operations communications used only within the area of Los Angeles and Long Beach harbors, within a 25-nautical mile radius of Point Fermin, California.

[3] 156.550 MHz, 156.600 MHz and 156.700 MHz are available in the U.S. Coast Guard designated port areas only for VTS communications and in the Great Lakes available primarily for communications relating to the movement of ships in sectors designated by the St. Lawrence Seaway Development Corporation or the U.S. Coast Guard. The use of these frequencies outside VTS and ship movement sector protected areas is permitted provided they cause no interference to VTS and ship movement communications in their respective designated sectors.

[4] Use of 156.875 MHz is limited to communications with pilots regarding the movement and docking of ships. Normal output power must not exceed 1 watt.

[5] 156.375 MHz and 156.650 MHz are available primarily for intership navigational communications. These frequencies are available between coast and ship on a secondary basis when used on or in the vicinity of locks or drawbridges. Normal output power must not exceed 1 watt. Maximum output power must not exceed 10 watts for coast stations or 25 watts for ship stations.

[6] On the Great Lakes, in addition to bridge-to-bridge communications, 156.650 MHz is available for vessel control purposes in established vessel traffic systems. 156.650 MHz is not available for use in the Mississippi River from South Pass Lighted Whistle Buoy "2" and Southwest Pass entrance Mid-channel Lighted Whistle Buoy to mile 242.4 above Head of Passes near Baton Rouge. Additionally it is not available for use in the Mississippi River-Gulf Outlet, the Mississippi River-Gulf Outlet Canal, and the Inner Harbor Navigational Canal, except to aid the transition from these areas.

[7] Use of 156.375 MHz is available for navigational communications only in the Mississippi River from South Pass Lighted Whistle Buoy "2" and Southwest Pass entrance Mid-channel Lighted Whistle Buoy to mile 242.4 above Head of Passes near Baton Rouge, and in addition over the full length of the Mississippi River-Gulf Outlet Canal from entrance to its junction with the Inner Harbor Navigational Canal, and over the full length of the Inner Harbor Navigational Canal from its junction with the Mississippi River to its entry to Lake Pontchartrain at the New Seabrook vehicular bridge.

[8] Within that portion of VHF Public Coast Station Areas (VPCSAs) 1 through 9 listed in the table in Section 80.371(c)(1)(ii) within 120 km (75 miles) of the United States/Canada border, in the area of the Great Lakes, the Saint Lawrence Seaway, and the Puget Sound and the Strait of Juan de Fuca and its approaches, Maritime VHF Channel 88A (157.425 MHz) is available for use for public correspondence communications, subject to prior coordination with Canada. Maritime VHF Channel 88B (162.025 MHz) is available only for Automatic Identification System communications. One hundred twenty kilometers (75 miles) from the United States/Canada border, 157.425 MHz is available for intership and commercial communications. Outside the Puget Sound area and its approaches and the Great Lakes, 157.425 MHz is available for communications between commercial fishing vessels and associated aircraft while engaged in commercial fishing activities.

[9] When the frequency 156.850 MHz is authorized, it may be used additionally for search and rescue training exercises conducted by state or local governments.

[10] The frequency 156.850 MHz is additionally available to coast stations on the Great Lakes for transmission of scheduled Coded Marine Weather Forecasts (MAFOR), Great Lakes Weather Broadcast (LAWEB) and unscheduled Notices to Mariners or Bulletins. F3C and J3C emissions are permitted. Coast stations on the Great Lakes must cease weather broadcasts which cause interference to stations operating on 156.800 MHz until the interference problem is resolved.

[11] The frequency 157.100 MHz is authorized for search and rescue training exercises by state or local government in conjunction with U.S. Coast Guard stations. Prior U.S. Coast Guard approval is required. Use must cease immediately on U.S. Coast Guard request.

[12] The duplex pair for channel 20 (157.000/161.600 MHz) may be used for ship to coast station communications.

[13] Available for assignment to coast stations, the use of which is in accord with an agreed program, for the broadcast of information to ship stations concerning the environmental conditions in which vessels operate, i.e., weather; sea conditions; time signals; notices to mariners; and hazards to navigation.

[14] Available only in the Puget Sound and the Strait of Juan de Fuca.

[15] The frequency 156.525 MHz is to be used exclusively for distress, safety and calling using digital selective calling techniques. No other uses are permitted.

[16] The frequency 156.450 MHz is available for intership, ship and coast general purpose calling by noncommercial vessels, such as recreational boats and private coast stations.

[17] The frequency 156.425 MHz is assigned by rule to private coast stations in Alaska for facsimile transmissions as well as voice communications.

[18] The frequencies 156.775 and 156.825 MHz are available for navigation-related port operations or ship movement only, and all precautions must be taken to avoid harmful interference to channel 16. Transmitter output power is limited to 1 watt for ship stations, and 10 watts for coast stations.

[19] 156.575 MHz is available for port operations communications use only within the U.S. Coast Guard designated VTS radio protection area of Seattle (Puget Sound) described in § 80.383. Normal output power must not exceed 1 watt. Maximum output power must not exceed 10 watts.

(g)(1) On-board communications: This section describes the carrier frequency pairs assignable for on-board mobile radiotelephony communications. The center of the on-board repeater antenna must not be located more than 3 meters (10 feet) above the ship's working deck. These frequencies are available on a shared basis with stations in the Industrial/Business Radio Pool.

FREQUENCIES FOR ON-BOARD COMMUNICATIONS

Channel	Carrier frequency (MHz)	
	On-board mobile station	On-board repeater station[1]
1	467.750	457.525
2	467.775	457.550
3	467.800	457.575
4	467.825	457.600

[1] These frequencies may also be assigned to mobile stations for single frequency simplex operation.

(2) Where needed, equipment designed for 12.5 kHz channel spacing using the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz, and 467.5625 MHz may be introduced for on-board communications.

(h) *Repeater frequencies in Alaska*. The following frequencies are assignable on a primary basis to public and on a secondary basis to private coast stations in Alaska for maritime repeater operations:

Repeater receive: 157.275 MHz
Repeater transmit: 161.875 MHz

(i) *Frequencies in the 1600–5450 kHz band for private communications in Alaska*. The following simplex frequencies are available for assignment to private fixed stations located in the State of Alaska for radiotelephony communications with ship stations. These simplex frequencies are available for use by authorized ship stations for radiotelephony communications with private fixed stations located in the State of Alaska.

PRIVATE COMMUNICATIONS IN ALASKA CARRIER FREQUENCIES (KHZ)

1619.0[3]	2382.0	2563.0
1622.0[3]	2419.0	2566.0
1643.0[3]	2422.0	2590.0
1646.0[3]	2427.0	2616.0
1649.0[3]	2430.0	3258.0
1652.0[3]	2447.0	[1] 3261.0
1705.0[3]	2450.0	4366.0
1709.0	2479.0	4369.0
1712.0	2482.0	4396.0
2003.0	2506.0	4402.0
2006.0	2509.0	4420.0

PRIVATE COMMUNICATIONS IN ALASKA CARRIER FREQUENCIES (KHZ)—Continued

2115.0	2512.0	4423.0
2118.0	2535.0	[2] 5167.5
2379.0	2538.0	.....

[1] Ship stations must limit use of 3261.0 kHz to communications over distances which cannot be reached by the use of frequency below 2700 kHz or above 156.000 MHz.

[2] The frequency 5167.5 kHz is available for emergency communications in Alaska. Peak envelope power of stations operating on this frequency must not exceed 150 watts. When a station in Alaska is authorized to use 5167.5 kHz, such station may also use this frequency for calling and listening for the purpose of establishing communications.

[3] Use of these frequencies is on a secondary basis to Region 2 broadcasting.

(j) *Frequencies for portable ship stations*. VHF frequencies authorized for stations authorized carrier frequencies in the 156.275 MHz to 157.450 MHz and 161.575 MHz to 162.025 MHz bands may also be authorized as marine utility stations. Marine-utility stations on shore must not cause interference to any Automatic Identification System, VHF or coast station, VHF or UHF land mobile base station, or U.S. Government station.

[51 FR 31213, Sept. 2, 1986; 51 FR 34984, Oct. 1, 1986]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 80.373, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 80.374 Provisions for frequencies in the 4000–4063 and the 8100–8195 kHz bands shared with the fixed service.

Coast station assignments in the 4000–4063 kHz band deviate from international provisions. Coast station assignments in the 4000–4063 kHz band are permitted provided that such stations must not cause interference to, and must accept interference from, stations operated by other countries in accordance with the Radio Regulations.

(a) *Frequencies in the 4000–4063 kHz band.* (1) The frequencies in the 4000–4063 kHz bands are available to ship and public coast stations for:

(i) Supplementary ship-to-shore duplex operations with coast stations assigned the frequencies described in § 80.371(b) of this part;

(ii) Intership simplex operations and cross-band operations;

(iii) Ship-to-shore or shore-to-ship simplex operations; or

(iv) Duplex operations with coast stations assigned in the band 4438–4650 kHz, as described in § 80.373(d) of this part.

(2) The following table describes the channelization of carrier frequencies in the 4000–4063 kHz band.

CARRIER FREQUENCIES (KHZ)

4000	4015	4030	4045
4003	4018	4033	4048
4006	4021	4036	4051
4009	4024	4039	4054
4012	4027	4042	4057

(b) *Frequencies in the 8100–8195 kHz band.* (1) The frequencies in the 8100–8195 kHz bands are available to ship and public coast stations for:

(i) Supplementary ship-to-shore duplex operations with coast stations assigned the frequencies described in § 80.371(b) of this part;

(ii) Intership simplex operations and cross-band operations; or

(iii) Ship-to-shore or shore-to-ship simplex operations.

(2) The following table describes the channelization of carrier frequencies in the 8100–8195 kHz band.

CARRIER FREQUENCIES (KHZ)

8101	8137	8167
8104	8140	8170
8107	8143	8173
8110	8146	8176

CARRIER FREQUENCIES (KHZ)—Continued

8116	8149	8179
8119	8152	8182
8122	8155	8185
8125	8158	8188
8131	8161	8191
8134	8164	

[56 FR 9896, Mar. 8, 1991, as amended at 65 FR 77826, Dec. 13, 2000; 68 FR 46970, Aug. 7, 2003]

RADIODETERMINATION

§ 80.375 Radiodetermination frequencies.

This section describes the carrier frequencies assignable to radiodetermination stations. Only direction finding radar stations will be authorized on land.

(a) *Direction finding frequencies.* The carrier frequencies assignable to ship stations for directional finding operations are:

Carrier Frequency

8364 kHz
121.500 MHz
243.00 MHz

(b) *Radiodetermination frequencies for cable-repair ships.* Except in Region 1 the channels in the 285–325 kHz band are assignable to ship stations for cable-repair radiodetermination operations. In Region 1 the channels available for assignment for such operations are limited to the 285–315 kHz band. The conditions of use of these channels are set forth in subpart X of this part. Channel usage must comply with the following requirements:

(1) They are not permitted within the territorial waters of a foreign country;

(2) Their output power must not exceed 15 watts; and

(3) They must not cause interference to any maritime station in the radionavigation service.

(c) *Radiodetermination frequencies below 500 MHz.* The frequencies 154.585 MHz, 159.480 MHz, 160.725 MHz, 160.785 MHz, 454.000 MHz and 459.000 MHz are authorized for offshore radiolocation and associated telecommand operations under a ship station license provided:

(1) The use of these frequencies is related to the ship's commercial operations;

(2) The station antenna height does not exceed 6 meters (20 feet) above sea level in a buoy station or 6 meters (20 feet) above the mast of the ship in which it is installed.

(d) *Radiodetermination frequency bands above 2400 MHz*. (1) The radiodetermination frequency bands assignable to ship and shore stations including ship and shore radar and transponder stations are as follows: 2450–2500 MHz; 2900–3100 MHz; 5460–5650 MHz; and 9300–9500 MHz.

(2) Assignment of these bands to ship and coast stations are subject to the following conditions:

(i) The 2450–2500 MHz band may be used only for radiolocation on the condition that harmful interference must not be caused to the fixed and mobile services. No protection is provided from interference caused by emissions from industrial, scientific, or medical equipment;

(ii) The use of the 2900–3100 MHz, 5470–5650 MHz and 9300–9500 MHz bands for radiolocation must not cause harmful interference to the radionavigation and Government radiolocation services. Additionally, the use of the 2900–3000 MHz band for radiolocation must not cause harmful interference to the Government meteorological aids service.

(iii) In the 2920–3100 MHz and 9320–9500 MHz bands the use of fixed-frequency transponders for radionavigation is not permitted;

(iv) Non-Government radiolocation stations may be authorized in the 5460–5470 MHz band on the condition that harmful interference shall not be caused to the aeronautical or maritime radionavigation services or to Government radiolocation service;

(v) The use of the 5460–5650 MHz band for radionavigation is limited to shipborne radar.

(e) *Search and rescue radar transponder stations*. The technical standards for search and rescue transponder stations are in subpart W of this part.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 7419, Mar. 11, 1987; 55 FR 6394, Feb. 23, 1990; 57 FR 26779, June 16, 1992; 58 FR 44953, Aug. 25, 1993; 68 FR 46970, Aug. 7, 2003; 76 FR 67615, Nov. 2, 2011]

SHIP EARTH STATIONS

§ 80.377 Frequencies for ship earth stations.

The frequency band 1626.5–1645.5 MHz is assignable for communication operations and radiodetermination and telecommand messages that are associated with the position, orientation and operational functions of maritime satellite equipment. The frequency band 1645.5–1646.5 MHz is reserved for use in the Global Maritime Distress and Safety System (GMDSS).

[78 FR 25175, Apr. 29, 2013]

AIRCRAFT STATIONS

§ 80.379 Maritime frequencies assignable to aircraft stations.

This section describes the maritime frequencies assignable to aircraft stations for simplex operations:

(a) Available frequencies:

Carrier frequency	Conditions of use
2738 kHz	(1)
2830 kHz	(1)
3023 kHz	(2)
4125 kHz	(3)
5680 kHz	(2)
121.500 MHz	(4)
123.100 MHz	(4)
156.300 MHz	(5)
156.375 MHz	(5)
156.400 MHz	(5)
156.425 MHz	(5)
156.450 MHz	(5)
156.625 MHz	(5)
156.800 MHz	(5)
156.900 MHz	(5)
157.100 MHz	(6)
157.425 MHz	(5)(7)

(b) The conditions of use of the carrier frequencies in paragraph (a) of this section, are:

(1) For permissible geographic areas of operation see § 80.373(b)(1). For other limitations see § 80.373(b)(7);

(2) Aircraft and ship stations may use 3023.0 kHz and 5680.0 kHz for search and rescue scene-of-action coordination including communications between these stations and participating land stations. Stations using these frequencies must use J3E emission;

(3) Assignable for distress and safety communications between aircraft and maritime mobile stations;

(4) Assignable for search and rescue between ships and aircraft. Stations

using these frequencies must use A3E emission;

(5) These frequencies may be used by aircraft stations when:

(i) The altitude of aircraft stations does not exceed 300 meters (1,000 feet), except for reconnaissance aircraft participating in icebreaking operations where an altitude of 450 meters (1,500 feet) is allowed;

(ii) The mean power of aircraft stations must not exceed five watts;

(iii) Communications are limited to operations in which the maritime mobile stations are primarily involved and where direct communications between the aircraft and the ship or coast station is required;

(iv) Stations may use 156.300 MHz for safety purposes only;

(v) Stations may use 156.800 MHz for distress, safety and calling only; and

(vi) Use of 156.375 MHz by aircraft is not permitted in the New Orleans VTS area specified in § 80.383.

(6) The use of 157.100 MHz is limited to communications with stations of the Department of Interior at Lake Mead, Nevada; and

(7) Commercial fishing vessels and associated aircraft may use 157.425 MHz while engaged in commercial fishing activities except within 120 km (75 miles) of the United States/Canada border and Puget Sound and the Strait of Juan de Fuca and its approaches, the Great Lakes, and the St. Lawrence Seaway.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44953, Aug. 25, 1993]

OPERATIONAL FIXED STATIONS

§ 80.381 Frequencies for operational fixed stations.

The following carrier frequencies in the 72–76 MHz band are assignable to operational fixed stations using vertical polarization, if no harmful interference is caused to TV reception on Channels 4 and 5. These frequencies are shared with the Land Mobile and Aviation Radio Services.

OPERATIONAL FIXED FREQUENCIES IN THE 72–76 MHZ BAND,P0,6/7
CARRIER FREQUENCY IN MHZ

72.02	72.28	72.64	72.90	75.68	75.94
72.04	72.30	72.66	72.92	75.70	75.96
72.06	72.32	72.68	72.94	75.72	75.98
72.08	72.34	72.70	72.96	75.74	.....
72.10	72.36	72.72	72.98	75.76	.....
72.12	72.38	72.74	75.42	75.78	.....
72.14	72.40	72.76	75.46	75.80	.....
72.16	72.42	72.78	75.50	75.82	.....
72.18	72.46	72.80	75.54	75.84	.....
72.20	72.50	72.82	75.58	75.86	.....
72.22	72.54	72.84	75.62	75.88	.....
72.24	72.58	72.86	75.64	75.90	.....
72.26	72.62	72.88	75.66	75.92	.....

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40059, Sept. 29, 1989]

VESSEL TRAFFIC SERVICES SYSTEM (VTS)

§ 80.383 Vessel Traffic Services (VTS) system frequencies.

This section describes the carrier frequencies available for use in the Coast Guard Vessel Traffic Services (VTS) systems within the designated geographic radio protected areas.

(a) Assigned frequencies:

VESSEL TRAFFIC CONTROL FREQUENCIES

Carrier frequencies (MHz)	Geographic areas
156.250	Seattle.
156.550	New York, New Orleans,[2] Houston, Prince William Sound,[2] Berwick Bay.
156.600	New York, New Orleans,[2] Houston, San Francisco,[2] Sault Ste. Marie.[2]
156.700	New York, New Orleans,[2] Seattle, San Francisco.[1]

[1] Private coast station licenses for the use of this frequency will not be renewed beyond November 1, 1997. Continued use until expiration must be on a noninterference basis to Coast Guard VTS communications.

[2] Private coast station licenses for the use of this frequency in this area will expire at the end of the current license term or five years after the adopted date of the final rule, whichever comes first. Continued use until expiration must be on a noninterference basis to Coast Guard VTS communications.

(b) The U.S. Coast Guard designated radio protection areas for VTS are as follows:

(1) *New York*. The rectangle between north latitudes 40 degrees and 42 degrees and west longitudes 71 degrees and 74 degrees 30 minutes;

(2) *New Orleans*. The rectangle between North latitudes 27 degrees 30 minutes and 31 degrees 30 minutes and West longitudes 87 degrees 30 minutes and 93 degrees;

(3) *Houston*. The rectangle between north latitudes 28 degrees 30 minutes and 30 degrees 20 minutes and west longitudes 93 degrees 30 minutes and 96 degrees;

(4) *Seattle (Puget Sound)*. The area encompassed between the United States-Canadian border and a line drawn from 49 degrees North 121 degrees West on the United States-Canadian Border, to 46 degrees 30 minutes North 121 degrees West, then to 46 degrees 30 minutes North 125 degrees West, then to 48 degrees 30 minutes North 125 degrees West, and then east to the United States-Canadian Border;

(5) *San Francisco*. The rectangle between north latitudes 39 degrees and 37 degrees and west longitudes 120 degrees 50 minutes and 123 degrees 20 minutes; and

(6) *Prince William Sound*. The rectangle between North latitudes 61 degrees 17 minutes and 59 degrees 22 minutes and West longitudes 149 degrees 39 minutes and 145 degrees 36 minutes.

(7) *Sault Ste. Marie*. The rectangle between North latitudes 45 degrees and 47 degrees, and West longitudes 83 degrees and 85 degrees.

(8) *Berwick Bay*. The rectangle between North latitudes 28 degrees 30 minutes and 30 degrees 30 minutes, and West longitudes 90 degrees 50 minutes and 92 degrees.

(c) The use of the frequencies shown in paragraph (a) of this section is permitted in areas outside the Coast Guard radio protection areas provided there is no interference to VTS communications within the VTS areas.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 54 FR 8746, Mar. 2, 1989; 55 FR 46514, Nov. 5, 1990; 58 FR 16504, Mar. 29, 1993; 61 FR 26120, May 24, 1996; 61 FR 26466, May 28, 1996; 63 FR 53313, Oct. 5, 1998]

AUTOMATED SYSTEMS

§ 80.385 Frequencies for automated systems.

This section describes the carrier frequencies for the Automated Maritime Telecommunications System (AMTS) and for other automated multi-station systems.

(a) *Automated Maritime Telecommunications System (AMTS)*. (1) The Automated Maritime Communications System (AMTS) is an automated maritime telecommunications system.

(2) The following carrier frequencies are available for assignment to public coast stations for public correspondence communications with ship stations and units on land. AMTS operations must not cause harmful interference to the U.S. Navy SPASUR system which operates in the band 216.880–217.080 MHz.

Channel No.	Carrier frequency (MHz)		
	Ship transmit [1 3]	Coast transmit [2]	Group
101		216.0125	D
102		216.0375	
103		216.0625	
104		216.0875	
105		216.1125	
106		216.1375	
107		216.1625	
108		216.1875	
109		216.2125	
110		216.2375	
111		216.2625	
112		216.2875	
113		216.3125	
114		216.3375	
115		216.3625	
116		216.3875	
117		216.4125	
118		216.4375	
119		216.4625	
120		216.4875	
121		216.5125	C
122		216.5375	
123		216.5625	
124		216.5875	
125		216.6125	
126		216.6375	
127		216.6625	
128		216.6875	
129		216.7125	
130		216.7375	
131		216.7625	
132		216.7875	
133		216.8125	
134		216.8375	
135		216.8625	
136		216.8875	
137		216.9125	
138		216.9375	
139		216.9625	
140		216.9875	
141	219.0125	217.0125	B
142	219.0375	217.0375	
143	219.0625	217.0625	
144	219.0875	217.0875	
145	219.1125	217.1125	
146	219.1375	217.1375	
147	219.1625	217.1625	
148	219.1875	217.1875	
149	219.2125	217.2125	
150	219.2375	217.2375	
151	219.2625	217.2625	
152	219.2875	217.2875	
153	219.3125	217.3125	
154	219.3375	217.3375	
155	219.3625	217.3625	
156	219.3875	217.3875	
157	219.4125	217.4125	

Channel No.	Carrier frequency (MHz)		
	Ship transmit [1 3]	Coast transmit [2]	Group
158	219.4375	217.4375	
159	219.4625	217.4625	
160	219.4875	217.4875	
161	219.5125	217.5125	A
162	219.5375	217.5375	
163	219.5625	217.5625	
164	219.5875	217.5875	
165	219.6125	217.6125	
166	219.6375	217.6375	
167	219.6625	217.6625	
168	219.6875	217.6875	
169	219.7125	217.7125	
170	219.7375	217.7375	
171	219.7625	217.7625	
172	219.7875	217.7875	
173	219.8125	217.8125	
174	219.8375	217.8375	
175	219.8625	217.8625	
176	219.8875	217.8875	
177	219.9125	217.9125	
178	219.9375	217.9375	
179	219.9625	217.9625	
180	219.9875	217.9875	

[1] Ship transmit frequencies in Groups C and D are not authorized for AMTS use.

[2] Coast station operation on frequencies in Groups C and D are not currently assignable and are shared on a secondary basis with the Low Power Radio Service in part 95 of this chapter. Frequencies in the band 216.750–217.000 MHz band are available for low power point-to-point network control communications by AMTS coast stations under the Low Power Radio Service (LPRS). LPRS operations are subject to the conditions that no harmful interference is caused to the United States Navy's SPASUR radar system (216.88–217.08 MHz) or to TV reception within the Grade B contour of any TV channel 13 station or within the 68 dBu predicted contour of any low power TV or TV translator station operating on channel 13.

[3] Ship transmit frequencies in Groups A and B are permitted to provide mobile-to-mobile communications where the written consent of all affected licensees is obtained.

(3) As listed in the table in this paragraph, AMTS Areas (AMTSAs) are based on, and composed of one or more of, the U.S Department of Commerce's 172 Economic Areas (EAs). See 60 FR 13114 (March 10, 1995). In addition, the Commission shall treat Puerto Rico, the United States Virgin Islands, and the Gulf of Mexico as EA-like areas. The Gulf of Mexico EA extends from 12 nautical miles off the United States Gulf coast outward into the Gulf. See § 27.6(a)(2) of this chapter and 62 FR 9636. Maps of the EAs and AMTSAs are available for public inspection and copying at the Federal Communications Commission, Reference Center, 445 12th Street, SW., Room CY A257, Washington, DC 20554. These maps and data are also available on the FCC Web site at *www.fcc.gov/oet/info/maps/areas/*. The Group A and B frequency pairs listed in the table in paragraph (a)(2) of this section are available for assignment to a single licensee in each of the AMTSAs listed in the table in this paragraph. In addition to the listed EAs listed in the table in this paragraph, each AMTSA also includes the adjacent waters under the jurisdiction of the United States.

AMTS AREAS (AMTSAs)

AMTSAs	EAs
1 (Northern Atlantic)	1–5, 10 9, 11–23, 25, 42, 46
2 (Mid-Atlantic)	24, 26–34, 37, 38, 40, 41, 174
3 (Southern Atlantic)	35, 36, 39, 43–45, 47–53, 67–107, 113, 116–120, 122– 125, 127, 130–134, 176 6–8, 54–66, 108, 109
4 (Mississippi River)	160–165 147, 166–170
5 (Great Lakes)	172
6 (Southern Pacific)	171 110–112, 114–115, 121, 126, 128, 129, 135–146, 148–159
7 (Northern Pacific)	
8 (Hawaii)	
9 (Alaska)	
10 (Mountain)	

(4) Channels in the 219–220 MHz band are also used on a secondary, non-interference basis by amateur stations participating in digital message forwarding systems. Amateur stations may not cause harmful interference to AMTS operations and must accept any harmful interference from AMTS operation. Amateur stations within 80 km (50 miles) of an AMTS coast station must obtain written approval from the AMTS licensee prior to operating in the 219–220 MHz band. Amateur stations within 640 km (398 miles) of an AMTS coast station must notify the AMTS licensee in writing at least 30 days prior to initiation of operations in the 219–220 MHz band. All amateur stations must notify the American Radio Relay League in writing at least 30 days prior to initiation of operations in the 219–220 MHz band (ARRL, 225 Main St., Newington, CT 06111–1494).

(b) Subject to the requirements of § 1.924 of this chapter, §§ 80.215(h), and 80.475(a), each AMTS geographic area licensee may place stations anywhere within its region without obtaining prior Commission approval provided:

(1) The AMTS geographic area licensee must locate its stations at least 120 kilometers from the stations of co-channel site-based AMTS licensees. Shorter separations between such stations will be considered by the Commission on a case-by-case basis upon

submission of a technical analysis indicating that at least 18 dB protection will be provided to a site-based licensee's predicted 38 dBu signal level contour. The site-based licensee's predicted 38 dBu signal level contour shall be calculated using the F(50, 50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction for antenna height differential. The 18 dB protection to the site-based licensee's predicted 38 dBu signal level contour shall be calculated using the F(50, 10) field strength chart for Channels 7–13 in § 73.699 (Fig. 10a) of this chapter, with a 9 dB correction factor for antenna height differential.

(2) The locations and/or technical parameters of the transmitters are such that individual coordination of the channel assignment(s) with a foreign administration, under applicable international agreements and rules in this part, is not required.

(3) For any construction or alteration that would exceed the requirements of § 17.7 of this chapter, licensees must notify the appropriate Regional Office of the Federal Aviation Administration (FAA Form 7460–1) and file a request for antenna height clearance and obstruction marking and lighting specifications (FCC Form 854) with the FCC, Attn: Information Processing Branch, 1270 Fairfield Rd., Gettysburg, PA 17325–7245.

(4) The transmitters must not have a significant environmental effect as defined by §§ 1.1301 through 1.1319 of this chapter.

(c) Any recovered frequency blocks will revert automatically to the holder of the geographic area license within which such frequencies are included. Any frequency blocks recovered where there is no geographic area licensee will be retained by the Commission for future licensing.

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 29041, July 11, 1989; 56 FR 3783, Jan. 31, 1991; 57 FR 26780, June 16, 1992; 60 FR 15687, Mar. 27, 1995; 61 FR 46566, Sept. 4, 1996; 67 FR 48565, July 25, 2002; 69 FR 19948, Apr. 15, 2004; 69 FR 44471, July 26, 2004; 73 FR 4486, Jan. 25, 2008; 75 FR 10692, Mar. 9, 2010]

ALASKA FIXED STATIONS

§ 80.387 Frequencies for Alaska fixed stations.

(a) The carrier frequencies listed in (b) of this section are assignable for point-to-point simplex radiotelephone communications between private fixed stations in Alaska. The frequency pairs listed in paragraph (d) of this section are assignable for point-to-point duplex radiotelephone communications between private and public fixed stations in Alaska. Fixed stations in Alaska authorized to share carrier frequencies with the maritime mobile service must always give priority on such frequencies to maritime distress, urgency and safety communications.

(b) *Alaska private-fixed station frequencies:*

CARRIER FREQUENCIES (kHz)

1643.0 [4]	2430.0	2773.0
1646.0 [4]	2447.0	3164.5
1649.0 [4]	2450.0	3183.0
1652.0 [4]	2463.0	3196.0
1657.0 [4]	2466.0	3201.0
1660.0 [1] [4]	2471.0	3258.0
1705.0 [4]	2479.0	3261.0
1709.0	2482.0	3303.0
1712.0	2506.0	3365.0
2003.0	2509.0	4035.0
2006.0	2512.0	5164.5
2115.0	2535.0	[3] 5167.5
2118.0	2538.0	5204.5
2253.0	2563.0	[2] 6948.5
2400.0	2566.0	[2] 7368.5
2419.0	2601.0	8067.0
2422.0	2616.0	8070.0
2427.0	2691.0	[2] 11437.0
		[2] [5] 11601.5

[1] Use of 1660.0 kHz must be coordinated to protect radiolocation on adjacent channels.

[2] Peak envelope power must not exceed 1 kW for radiotelephony. Teleprinter use is authorized.

[3] The frequency 5167.5 kHz is available for emergency communications in Alaska. Peak envelope power of stations operating on this frequency must not exceed 150 watts. When a station in Alaska is authorized to use 5167.5 kHz, such station may also use this frequency for calling and listening for the purpose of establishing communications.

[4] Use of these frequencies is on a secondary basis to Region 2 broadcasting.

[5] After April 1, 2007, use of the frequency 11601.5 kHz shall be on the condition that harmful interference is not caused to HF broadcasting.

(c) Use of the frequencies in paragraph (b) of this section must meet the following conditions:

(1) Communications between private coast and private fixed stations are prohibited; and

(2) Station licensees must not charge for third party communication services between their station and any other private fixed station.

(d) The following carrier frequency pairs are assignable for point-to-point communications between public fixed and private fixed stations:

Public fixed station frequencies (kHz)	Private fixed Station frequencies (kHz)
[1] 2312.0	2632.0
2604.0	2256.0
2781.0	[3] 2474.0
2784.0	2694.0
3167.5	3354.0
3180.0	2776.0
3241.0	3357.0
3362.0	3238.0
[2] 4791.5	5207.5
5370.0	[4] 5134.5, [4] 5137.5

[1] This frequency is assignable on a primary basis to public coast stations and on a secondary basis to public fixed stations.
[2] Teleprinter use is authorized.
[3] Peak envelope power must not exceed 1 kW.
[4] Licensees must cease all communications on 5134.5 kHz and 5137.5 kHz when notified by the State of Alaska of an emergency or disaster. Licensees may resume communication on these frequencies when notified by the State of Alaska that the disaster or harmful interference has ended.

(e) The public fixed station frequencies are assignable to common carriers.

(f) The private fixed station frequencies described in paragraph (d) of this section are assignable to private entities located in areas where common carrier facilities are not available. Private fixed stations operating on the frequencies in paragraph (d) of this section, must communicate with public fixed stations only. Private fixed stations are permitted to provide third party communications between their station and the public fixed stations. A charge for such service is prohibited.

(g) U.S. Government frequencies will be authorized if the Commission determines that the assignment is in the public interest.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 56 FR 34030, July 25, 1991; 68 FR 25540, May 13, 2003]

MARITIME SUPPORT STATIONS

§ 80.389 Frequencies for maritime support stations.

(a) *Marine receiver test.* Maritime support stations will be authorized to conduct receiver tests on the ship station frequencies of the channels assigned to the associated public coast station.

(b) *Shore radar and radiolocation tests.* The following frequency bands are available for assignment to demonstrate radar and radiolocation equipment. The use of frequencies within these bands must not cause harmful interference to the radionavigation service and the Government radiolocation service: 2450–2500 MHz, 2900–3100 MHz, 5460–5650 MHz, 9300–9500 MHz, 14.0–14.05 GHz.

DEVELOPMENTAL STATIONS

AIS STATIONS

§ 80.393 Frequencies for AIS stations.

Automatic Identification Systems (AIS) are a maritime broadcast service. The simplex channels at 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2), each with a 25 kHz bandwidth, may be authorized only for AIS. In accordance with the Maritime Transportation Security Act, the United States Coast Guard regulates AIS carriage requirements for non-Federal Government ships. These requirements are codified at 33 CFR 164.46, 401.20.

[74 FR 5125, Jan. 29, 2009]

Subpart I—Station Documents

§ 80.401 Station documents requirement.

Licensees of radio stations are required to have current station documents as indicated in the following table:

LEGEND:
R = REQUIRED

DOCUMENTS →

	Radio Station Category	Station License	Appropriate Operator Authorization	Station Logs	Appropriate Safety Convention Certificate	Communications Act Safety Certificate	Great Lakes Radio Agreement Safety Certificate	Bridge to Bridge Act Safety Certificate	Part 80; FCC Rules and Regulations	Alphabetical List of Maritime Mobile Call Signs	List of Ship Stations	Manual for Use by Maritime Mobile (M/M) Service & M/M Satellite Service	List of Coast Stations	List of Radiodetermination and Special Services Stations	Station Equipment Records	GMDSS Master Plan	NGA Publication 117	Admiralty List of Radio Signals	IMO Circ. 7
Shipboard:	Cargo Ships (300 gross tons and up)	R1	R	R	R				R	R	R	R	R	R		R5	R5	R5	R5
	Passenger Vessels – SOLAS	R1	R	R	R				R	R	R	R	R2	R		R5	R5	R5	R5
	Passenger Vessels – Domestic	R1	R	R		R			R										
	Telephone; Great Lakes Radio Agreement	R	R	R4			R4												
	Telephone; Bridge-to-Bridge Act	R	R	R				R											
	Radar	R		R															
	On Board	R													R				
	Voluntary	R	R																
Land:	Public Coast (MF)	R	R	R						R	R3	R3							
	Public Coast (HF)	R	R	R						R	R	R							
	Public-Coast (VHF)	R	R	R						R									
	Private Coast	R	R																
	Radio Determination	R	R																
	Operational Fixed	R	R																
	Maritime Support	R	R																
	Alaska – Public Fixed	R	R	R															
	Alaska – Private Fixed	R	R																
Ship/Coast:	Marine Utility	R	R																

NOTES: 1. The expired station license must be retained in the station records until the first Commission inspection after the expiration date.

2. Alternatively, a list of coast stations maintained by the licensee with which communications are likely to be conducted, showing watch-keeping hours, frequencies and charges, is authorized.

3. Required only if station provides a service to ocean-going vessels.

4. Certification of a Great Lakes Agreement inspection may be made by either a log entry or issuance of a Great Lakes Agreement certificate. Radiotelephone logs containing entries certifying that a Great Lakes Agreement inspection has been conducted must be retained and be available for inspection by the FCC for 2 years after the date of the inspection.

5. The requirements for having the GMDSS Master Plan, NGA Publication 117, Admiralty List of Radio Signals or IMO Circ. 7 are satisfied by having any one of those four documents.

[68 FR 46970, Aug. 7, 2003, as amended at 78 FR 23156, Apr. 18, 2013]

§ 80.403 Availability of documents.

Station documents must be readily available to the licensed operator(s) on duty during the hours of service of the station and to authorized Commission employees upon request.

§ 80.405 Station license.

(a) *Requirement*. Except as provided in § 80.13(c), stations must have an authorization granted by the Federal Communications Commission.

(b) *Application*. Application for authorizations in the maritime services must be submitted on the prescribed forms in accordance with subpart B of this part.

(c) *Posting*. (1) The current station authorization for a station other than a public coast station, or a clearly legible copy, must be posted at the principal control point of each station. If a copy is posted, it must indicate the location of the original. When the station license cannot be posted as in the case of a marine utility station operating at temporary unspecified locations or the ship or recreational boat does not have an enclosed wheelhouse, it must be kept where it will be readily available for inspection. The licensee of a station on board a ship subject to Part II or III or Title III of the Communications Act or the Safety Convention must retain the most recently expired ship station license in the station records until the first Commission inspection after the expiration date.

(2) Public coast stations authorized under this part must make available either a clearly legible copy of the authorization for each station at the principal control point of the station or an address or location where the current authorization may be found and a telephone number of that authorization's representative.

[51 FR 31213, Sept. 2, 1986, as amended at 62 FR 40307, July 28, 1997; 68 FR 46972, Aug. 7, 2003; 69 FR 64676, Nov. 8, 2004]

§ 80.407 Operator authorization.

This section contains information and rules pertinent to the application for and posting of radio operator authorizations. Rules applicable to radio operator requirements are contained in subpart D of this part and other rules pertinent to commercial radio operators are contained in part 13 of this chapter.

(a) *Application*. Detailed information about application forms, filing procedures, and places to file applications for radio operator authorizations is contained in the bulletin ''Commercial Radio Operator Licenses and Permits.'' This bulletin is available from any Commission District Office or from the FCC, Washington, DC 20554.

(b) *Posting*. When a Commission-authorized operator is required, the original authorization of each operator must be posted at the principal control point of the station. In lieu of posting, an operator who holds a restricted radiotelephone operator permit or a higher class operator license may have the operator authorization or a photocopy thereof available for inspection upon request by authorized Commission employees when operating the following:

(1) A voluntary station;

(2) Any class of ship station when the operator is on board solely to service the radio equipment; or

(3) A portable station.

§ 80.409 Station logs.

(a) *General requirements*. Logs must be established and properly maintained as follows:

(1) The log must be kept in an orderly manner. The log may be kept electronically or in writing. The required information for the particular class or category of station must be readily available. Key letters or abbreviations may be used if their proper meaning or explanation is contained elsewhere in the same log.

(2) Erasures, obliterations, or willful destruction of written logs, or deletions of data or willful destruction of computer files or computer hardware containing electronic logs, is prohibited during the retention period. Corrections may be made only by the person originating the entry by striking out the error, initialing the correction and indicating the date of correction. With respect to electronic logs, striking out the error is to be accomplished using a strike-through formatting effect or a similar software function, and the correction is to be acknowledged through a dated electronic signature at the location of the strike-through.

(3) Ship station logs must identify the vessel name, country of registry, and official number of the vessel.

(4) The station licensee and the radio operator in charge of the station are

responsible for the maintenance of station logs.

(b) *Availability and retention.* Station logs must be made available to authorized Commission employees upon request and retained as follows:

(1) Logs must be retained by the licensee for a period of two years from the date of entry, and, when applicable, for such additional periods as required by the following paragraphs:

(i) Logs relating to a distress situation or disaster must be retained for three years from the date of entry.

(ii) If the Commission has notified the licensee of an investigation, the related logs must be retained until the licensee is specifically authorized in writing to destroy them.

(iii) Logs relating to any claim or complaint of which the station licensee has notice must be retained until the claim or complaint has been satisfied or barred by statute limiting the time for filing suits upon such claims.

(2) Logs containing entries required by paragraph (c) of this section must be kept either at the principal control point of the station or electronically filed at the station licensee's primary office or available to the Commission via secured access to the licensee's Internet web site. Logs containing entries required by paragraphs (e) and (f) of this section must be kept at the principal radiotelephone operating location while the vessel is being navigated. All entries in their original form must be retained on board the vessel for at least 30 days from the date of entry. Additionally, logs required by paragraph (f) of this section must be retained on board the vessel for a period of 2 years from the date of the last inspection of the ship radio station.

(3) Ship radiotelegraph logs must be kept in the principal radiotelegraph operating room during the voyage.

(c) *Public coast station logs.* Public coast stations must maintain a log, whether by means of written or automatic logging or a combination thereof. The log must contain the following information:

(1) ''ON DUTY'' must be entered by the operator beginning a duty period, followed in the case of a written log by the operator's signature. ''OFF DUTY'' must be entered by the operator being relieved of or terminating duty, followed in the case of a written log by the operator's signature.

(2) The date and time of making an entry must be shown opposite the entry.

(3) Failure of equipment to operate as required and incidents tending to unduly delay communication must be entered.

(4) All measurements of the transmitter frequency(ies) must be entered with a statement of any corrective action taken.

(5) Entries must be made giving details of all work performed which may affect the proper operation of the station. The entry must be made, dated and in the case of a written log signed by the operator who supervised or performed the work and, unless the operator is regularly employed on a full-time basis at the station, must also include the mailing address, class, serial number, and expiration date of the operator license.

(6) Entries must be made about the operation of the antenna tower lights when the radio station has an antenna structure requiring illumination by part 17 of this chapter.

(7) All distress or safety related calls transmitted or received must be entered, together with the frequency used and the position of any vessel in need of assistance.

(d) *Ship radiotelegraph logs.* Logs of ship stations which are compulsorily equipped for radiotelegraphy and operating in the band 90 to 535 kHz must contain log entries as follows:

(1) The date and time of each occurrence or incident required to be entered in the log must be shown opposite the entry and the time must be expressed in Coordinated Universal Time (UTC).

(2) ''ON WATCH'' must be entered by the operator beginning a watch, followed by the operator's signature for stations maintaining written logs. ''OFF WATCH'' must be entered by the operator being relieved or terminating a watch, followed by the operator's signature for stations maintaining written logs. All log entries must be completed by the end of each watch.

(3) During the watch, all calls and replies to and from the station must be

entered to include the time, frequencies, and call letters of the station communicated with or heard. Also, any messages exchanged must be entered to include the time, frequency, and call letters of the station(s) communicated with or heard.

(4) All distress calls, automatic-alarm signals, urgency and safety signals made or intercepted, the complete text, if possible, or distress messages and distress communications, and any incidents or occurrences which may appear to be of importance to safety of life or property at sea, must be entered, together with the time of such observation or occurrence and the position of the ship or other mobile unit in need of assistance.

(5) The position of the ship at least once per day.

(6) A daily entry must be made comparing the radio station clock with standard time, including errors observed and corrections made. For this purpose, authentic radio time signals received from land or fixed stations will be acceptable as standard time.

(7) All test transmissions must be entered, including the time of the transmissions and the approximate geographical location of the vessel.

(8) Any failure of equipment to operate as required and any incidents tending to unduly delay communications must be entered.

(e) *Ship radiotelephone logs.* Logs of ship stations which are compulsorily equipped for radiotelephony must contain the following applicable log entries and the time of their occurrence:

(1) A summary of all distress and urgency communications affecting the station's own ship, all distress alerts relayed by the station's own ship, and all distress call acknowledgements and other communications received from search and rescue authorities.

(2) A summary of safety communications on other than VHF channels affecting the station's own ship.

(3) The time of any inadvertent transmissions of distress, urgency and safety signals including the time and method of cancellation.

(4) An entry that pre-departure equipment checks were satisfactory and that required publications are on hand. Daily entries of satisfactory tests to ensure the continued proper functioning of GMDSS equipment shall be made.

(5) A daily statement about the condition of the required radiotelephone equipment, as determined by either normal communication or test communication;

(6) A weekly entry that:

(i) The proper functioning of digital selective calling (DSC) equipment has been verified by actual communications or a test call;

(ii) The portable survival craft radio gear and radar transponders have been tested; and

(iii) The EPIRBs have been inspected.

(7) An entry at least once every thirty days that the batteries or other reserve power sources have been checked and are functioning properly.

(8) Results of required equipment tests, including specific gravity of lead-acid storage batteries and voltage reading of other types of batteries provided as a part of the compulsory installation;

(9) Results of inspections and tests of compulsorily fitted lifeboat radio equipment;

(10) When the master is notified about improperly operating radiotelephone equipment.

(11) At the beginning of each watch, the Officer of the Navigational Watch, or GMDSS Operator on watch, if one is provided, shall ensure that the navigation receiver is functioning properly and is interconnected to all GMDSS alerting devices which do not have integral navigation receivers, including: VHF DSC, MF DSC, satellite EPIRB and HF DSC or INMARSAT SES. On a ship without integral or directly connected navigation receiver input to GMDSS equipment, the Officer of the Navigational Watch, or GMDSS Operator on watch, shall update the embedded position in each equipment. An appropriate log entry of these actions shall be made.

(12) An entry describing any malfunctioning GMDSS equipment and another entry when the equipment is restored to normal operation.

(13) A GMDSS radio log entry shall be made whenever GMDSS equipment is exchanged or replaced (ensuring that

ship MMSI identifiers are properly updated in the replacement equipment), when major repairs to GMDSS equipment are accomplished, and when annual GMDSS inspections are conducted.

(f) *Applicable radiotelephone log entries*. The log entries listed in paragraph (e) of this section are applicable as follows (vessels subject to the Global Maritime Distress and Safety System (GMDSS) should also refer to subpart W of this Part for additional guidance on maintenance of station logs):

(1) Radiotelephony stations subject to the Communications Act and/or the Safety Convention must record entries indicated by paragraphs (e)(1) through (e)(13) of this section. Additionally, the radiotelephone log must provide an easily identifiable, separate section relating to the required inspection of the ship's radio station. Entries must be made in this section giving at least the following information.

(i) For ships that pass the inspection:

(A) The date the inspection was conducted.

(B) The date by which the next inspection needs to completed.

(C) The inspector's printed name, address and class of FCC license (including the serial number).

(D) The results of the inspection, including any repairs made.

(E) The inspector's signed and dated certification that the vessel meets the requirements of the Communications Act and, if applicable, the Safety Convention and the Bridge-to-Bridge Act contained in subparts R, S, U, or W of this part and has successfully passed the inspection.

(F) The vessel owner, operator, or ship's master's certification that the inspection was satisfactory.

(ii) For ships that fail the inspection:

(A) The date the inspection was conducted.

(B) The inspector's printed name, address and class of FCC license (including the serial number).

(C) The reason that the ship did not pass the inspection.

(D) The date and time that the ship's owner, operator or master was notified that the ship failed the inspection.

(2) Radiotelephony stations subject to the Great Lakes Agreement and the Bridge-to-Bridge Act must record entries indicated by paragraphs (e)(1), (3), (5), (6), (7), (8), (10), (11), and (13), and of this section. Additionally, the radiotelephone log must provide an easily identifiable, separate section relating to the required inspection of the ship's radio station. Entries must be made in this section giving at least the following information:

(i) The date the inspection was conducted;

(ii) The date by which the next inspection needs to be completed;

(iii) The inspector's printed name, address and class of FCC license (including the serial number);

(iv) The results of the inspection, including any repairs made;

(v) The inspector's signed and dated certification that the vessel meets the requirements of the Great Lakes Agreement and the Bridge-to-Bridge Act contained in subparts T and U of this part and has successfully passed the inspection; and

(vi) The vessel owner, operator, or ship's master's certification that the inspection was satisfactory.

(3) Radiotelephony stations subject to the Bridge-to-Bridge Act must record entries indicated by paragraphs (e)(1), (3), (5) (6), (7), (10), and (11) of this section.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 54 FR 40059, Sept. 29, 1989; 61 FR 25807, May 23, 1996; 63 FR 29659, June 1, 1998; 68 FR 46972, Aug. 7, 2003; 69 FR 64676, Nov. 8, 2004; 73 FR 4486, Jan. 25, 2008; 78 FR 23156, Apr. 18, 2013]

§ 80.411 Vessel certification or exemption.

(a) *Application*. The application procedures for inspection and certification and for exemptions are contained in § 80.59.

(b) *Posting*. Communications Act, Safety Convention and Great Lakes Radio Agreement certificates or exemptions must be posted in a prominent, accessible place in the ship. Ships subject to the Great Lakes Agreement may, in lieu of a posted certificate, certify compliance in the station log required by section 80.409(f).

[51 FR 31213, Sept. 2, 1986, as amended at 61 FR 25807, May 23, 1996]

§ 80.413 On-board station equipment records.

(a) The licensee of an on-board station must keep equipment records which show:

(1) The ship name and identification of the on-board station;

(2) The number and type of repeater and mobile units used on-board the vessel; and

(3) The date and type of equipment which is added or removed from the on-board station.

(b) [Reserved]

§ 80.415 Publications.

(a) The following publications listed in the table contained in § 80.401 are published by the International Telecommunications Union (ITU):

(1) Manual for Use of the Maritime Mobile and Maritime Mobile-Satellite Services.

(2) List IV—List of Coast Stations.

(3) List V—List of Ship Stations.

(4) List VI—List of Radiodetermination and Special Services Stations.

(5) List VII A—Alphabetical List of Call Signs of Stations Used by the Maritime Mobile Service, Ship Station Selective Call Numbers or Signals and Coast Station Identification Numbers or Signals. These publications may be purchased from: International Telecommunication Union, General Secretariat-Sales Section, Place des Nations, CH–1211 Geneva 20, Switzerland

(b) The following publications listed in the table contained in § 80.401 are available as follows:

(1) IMO GMDSS Master Plan may be purchased from International Maritime Organization (IMO), Publications, 4 Albert Embankment, London SE1 7 SR, United Kingdom; telephone 011 44 71 735 7611.

(2) U.S. NGA Publication 117 may be purchased from Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250–7954, telephone 202–512–1800.

(3) The Admiralty List of Radio Signals, Volume 5—Global Maritime Distress and Safety System, may be purchased from UK Hydrographic Office, Admiralty Way, Tauton, Somerset TA1 2DN, United Kingdom, telephone +44 (0)1823 337900 x3333.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46972, Aug. 7, 2003; 78 FR 23157, Apr. 18, 2013]

§ 80.417 FCC Rules and Regulations.

The Commission's printed publications are described in subpart C of part 0 of this chapter. These publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Commission does not furnish copies of these publications but will furnish a price list, Information Services and Publications—Bulletin No. 1, upon request. Requests for copies of this list may be directed to the Consumer Information Bureau, Consumer Information Network Division. Information bulletins and fact sheets containing information about communications issues and the Federal Communications Commission are also available on the Commission's web site at *www.fcc.gov* or *ftp.fcc.gov*.

[68 FR 46972, Aug. 7, 2003]

Subpart J—Public Coast Stations

STATIONS ON LAND

§ 80.451 Supplemental eligibility requirements.

A public coast station license may be granted to any person meeting the citizenship provisions of § 80.15(b).

§ 80.453 Scope of communications.

Public coast stations provide ship/shore radiotelephone and radiotelegraph services.

(a) Public coast stations are authorized to communicate:

(1) With any ship or aircraft station operating in the maritime mobile service, for the transmission or reception of safety communication;

(2) With any land station to exchange safety communications to or from a ship or aircraft station;

(3) With Government and non-Government ship and aircraft stations to exchange public correspondence;

(4) With units on land in accordance with § 80.123.

(b) Public coast stations are authorized to communicate with a designated station at a remote fixed location where other communication facilities are not available.

(c) Public coast stations are authorized to transmit meteorological and navigational information of benefit to mariners.

(d) Each public coast telegraphy station is authorized to communicate with other public coast telegraphy stations to exchange message traffic destined to or originated at mobile stations:

(1) To exchange operating signals, brief service messages or safety communication;

(2) To exchange message traffic destined for a mobile station when the coast station initially concerned is unable to communicate directly with the mobile station;

(3) In the Great Lakes region, to exchange message traffic originated at a mobile station when the use of available point-to-point communication facilities would delay the delivery of such message traffic;

(4) Utilization of radiotelegraphy must not incur additional charges or replace available point-to-point communication facilities;

(5) Only authorized working frequencies within the band 415 kHz to 5000 kHz must be employed for communications between coast stations;

(6) Harmful interference must not be caused to communication between mobile stations and coast stations or between mobile stations.

[51 FR 31213, Sept. 2, 1986, as amended at 62 FR 40307, July 28, 1997]

USE OF TELEGRAPHY

§ 80.455 Assignment and use of frequencies for manual Morse code telegraphy.

(a) The frequencies designated in §§ 80.355 and 80.357 may be licensed for use by coast stations employing telegraphy.

(b) [Reserved]

§ 80.459 Digital selective calling.

Subpart H of this part lists frequencies assignable for DSC.

§ 80.461 Narrow-band direct-printing.

Subpart H of this part lists the frequencies assignable to public coast stations for operations with ship stations. Operating procedures are listed in subpart C of this part.

USE OF TELEPHONY

§ 80.465 Assignment and use of frequencies for telephony.

Subpart H of this part lists the frequencies available for assignment to public coast stations for telephony operations.

§ 80.467 Duplication of VHF service.

No duplication of service areas as determined by subpart P of this part will be permitted by public coast stations operating on the same VHF public correspondence channel. Within the service area of a station, the ratio of desired to undesired co-channel signal strengths on public correspondence channels must be at least 12dB.

§ 80.469 Maritime mobile repeater stations in Alaska.

(a) Maritime mobile repeater stations are authorized to extend the range of communication between a VHF public coast station located in Alaska and ship stations.

(b) On a secondary basis, maritime mobile repeater stations may be authorized to extend the range of a private coast station:

(1) In an area where VHF common carrier service is not available;

(2) A maritime mobile repeater station license expires 60 days after a public coast station in the area begins service.

(c) Maritime mobile repeater stations may not be authorized in cases where operational fixed frequencies can be employed.

(d) The provisions relating to duplication of service described in subpart P apply to maritime mobile repeater stations.

(e) The frequencies 157.275 and 161.875 MHz are assignable to maritime mobile repeater stations.

(f) Each maritime mobile repeater station must:

(1) Deactivate automatically within 5 seconds after the signals controlling the station cease; and

(2) During periods when it is not controlled from a manned control point, deactivate automatically not more than 20 minutes after its activation by a mobile unit.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 68956, Dec. 14, 1998]

§ 80.471 Discontinuance or impairment of service.

Except as specified in § 20.15(b)(3) of this chapter with respect to commercial mobile radio service providers, a public coast station must not discontinue or impair service unless authorized to do so by the Commission.

[69 FR 64676, Nov. 8, 2004]

AUTOMATED SYSTEMS

§ 80.475 Scope of service of the Automated Maritime Telecommunications System (AMTS).

(a) A separate Form 601 is not required for each coast station in a system. However, except as provided in § 80.385(b) and paragraph (b) of this section, the applicant must provide the technical characteristics for each proposed coast station, including transmitter type, operating frequencies, emissions, transmitter output power, antenna arrangement, and location.

(1) Applicants proposing to locate a coast station transmitter within 169 kilometers (105 miles) of a channel 13 TV station or within 129 kilometers (80 miles) of a channel 10 TV station or with an antenna height greater than 61 meters (200 feet), must submit an engineering study clearly showing the means of avoiding interference with television reception within the grade B contour, *see* § 80.215(h) of this chapter, unless the proposed station's predicted interference contour is fully encompassed by the composite interference contour of the applicant's existing system, or the proposed station's predicted interference contour extends the system's composite interference contour over water only (disregarding uninhabited islands).

(2) Additionally, applicants required to submit the above specified must give written notice of the filing of such applications(s) to the television stations which may be affected. A list of the notified television stations must be submitted with the subject applications.

(b) Coast stations for which the above specified need not be submitted because the proposed station's predicted interference contour is fully encompassed by the composite interference contour of the applicant's existing system or the proposed station's predicted interference contour extends the system's composite interference contour over water only (disregarding uninhabited islands) must, at least 15 days before the station is put into operation, give written notice to the television stations which may be affected of the proposed station's technical characteristics, the date it will be put into operation, and the licensee's representative (name and phone number) to contact in the event a television station experiences interference. No prior FCC authorization is required to construct and operate such a station, but, at the time the station is added, the AMTS licensee must make a record of the technical and administrative information concerning the station and, upon request, supply such information to the FCC. In addition, when the station is added, the AMTS licensee must send notification of the station's location to the American Radio Relay League, Inc., 225 Main Street, Newington, CT 06111–1494, and Interactive Systems, Inc., Suite 1103, 1601 North Kent Street, Arlington, VA 22209.

(c) An AMTS system may provide private mobile radio service in addition to or instead of public correspondence service. However, such communications may be provided only to stations whose licensees make cooperative arrangements with the AMTS coast station licensees. In emergency and distress situations, services must be provided to ship stations without prior arrangements.

(d) AMTS systems providing private mobile radio service instead of, or in addition to, public correspondence

service are not required to be interconnected to the public switched network when providing such private mobile radio service. AMTS systems providing public correspondence service must be interconnected to the public switched network, but the licensee may also offer non-interconnected services.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 56 FR 3783, Jan. 31, 1991; 65 FR 77826, Dec. 13, 2000; 67 FR 48567, July 25, 2002; 69 FR 19948, Apr. 15, 2004; 72 FR 31194, June 6, 2007]

§ 80.477 AMTS points of communication.

(a) AMTS coast stations may communicate with fixed platform stations located in the offshore waters of the Gulf of Mexico, with ship stations, and with land units in accordance with § 80.123.

(b) AMTS licensees in the offshore waters of the Gulf of Mexico may use AMTS coast and ship station frequencies on a secondary basis for fixed service communications to support offshore AMTS operations.

(c) AMTS service may be provided to any vessel within communication service range of an AMTS station even though the vessel may not be operating within the confines of a served waterway.

(d) AMTS licensees may use AMTS coast and ship frequencies on a secondary basis for fixed service communications to support AMTS deployment in remote fixed locations at which other communications facilities are not available.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987; 62 FR 40307, July 28, 1997; 65 FR 77827, Dec. 13, 2000]

§ 80.479 Assignment and use of frequencies for AMTS.

(a) The frequencies assignable to AMTS stations are listed in subpart H of this subpart.

(b) The transmissions from a station of an AMTS geographic area licensee may not exceed a predicted 38 dBu field strength at the geographic area border, unless all affected co-channel geographic area licensees agree to the higher field strength. The predicted 38 dBu field strength is calculated using the F(50, 50) field strength chart for Channels 7 through 13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential. Geographic area licensees must coordinate to minimize interference at or near their geographic area borders, and must cooperate to resolve any instances of interference in accordance with the provisions of § 80.70(a).

(c) AMTS frequencies may be used for mobile-to-mobile communications if written consent is obtained from all affected licensees.

[67 FR 48567, July 25, 2002, as amended at 72 FR 31194, June 6, 2007]

§ 80.481 Alternative technical parameters for AMTS transmitters.

In lieu of the technical parameters set forth in this part, AMTS transmitters may utilize any modulation or channelization scheme so long as emissions are attenuated in accordance with § 80.211 at the band edges of each station's assigned channel group or groups.

[65 FR 77827, Dec. 13, 2000]

Subpart K—Private Coast Stations and Marine Utility Stations

§ 80.501 Supplemental eligibility requirements.

(a) A private coast station or a marine utility station may be granted only to a person who is:

(1) Regularly engaged in the operation, docking, direction, construction, repair, servicing or management of one or more commercial transport vessels or United States, state or local government vessels; or is

(2) Responsible for the operation, control, maintenance or development of a harbor, port or waterway used by commercial transport vessels; or is

(3) Engaged in furnishing a ship arrival and departure service, and will employ the station only for the purpose of obtaining the information essential to that service; or is

(4) A corporation proposing to furnish a nonprofit radio communication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary where the party

to be served performs any of the eligibility activities described in this section; or is

(5) A nonprofit corporation or association, organized to furnish a maritime mobile service solely to persons who operate one or more commercial transport vessels; or is

(6) Responsible for the operation of bridges, structures or other installations that area part of, or directly related to, a harbor, port or waterway when the operation of such facilities requires radio communications with vessels for safety or navigation; or is

(7) A person controlling public moorage facilities; or is

(8) A person servicing or supplying vessels other than commercial transport vessels; or is

(9) An organized yacht club with moorage facilities; or is

(10) A nonprofit organization providing noncommercial communications to vessels other than commercial transport vessels.

(b) Each application for station authorization for a private coast station or a marine utility station must be accompanied by a statement indicating eligibility under paragraph (a) of this section.

§ 80.503 Cooperative use of facilities.

(a) A person engaged in the operation of one or more commercial transport vessels or government vessels may receive maritime mobile service from a private coast station or a marine utility station on shore even though not the licensee of the private coast station or the marine utility station. Restrictions on cooperative arrangements are as follows:

(1) Foreign persons must be the licensees of the radio stations installed on board their vessels.

(2) The licensee of a private coast station or marine utility station on shore may install ship radio stations on board United States commercial transport vessels of other persons. In each case these persons must enter into a written agreement verifying that the ship station licensee has the sole right of control of the ship stations, that the vessel operators must use the ship stations subject to the orders and instructions of the coast station or marine utility station on shore, and that the ship station licensee will have sufficient control of the ship station to enable it to carry out its responsibilities under the ship station license.

(b) Cooperative arrangements are limited concerning cost and charges as follows:

(1) The arrangement must be established on a non-profit, cost-sharing basis by written contract. A copy of the contract must be kept with the station records and made available for inspection by Commission representatives.

(2) Contributions to capital and operating expenses are to be prorated on an equitable basis among all persons who are parties to the cooperative arrangement. Records which reflect the cost of the service and its nonprofit, cost-sharing nature must be maintained by the licensee of the station and made available for inspection by Commission representatives.

§ 80.505 Points of communication.

(a) Private coast stations and marine utility stations are authorized to communicate:

(1) With any mobile station in the maritime mobile service for the exchange of safety communications;

(2) With any land station for the purpose of aiding the exchange of safety communications;

(3) With ship stations.

(b) Private coast stations of the same licensee may be authorized to communicate on a secondary basis between themselves if:

(1) The communications are confined exclusively to those for which authority has been granted the coast station, and concerns ships with which one or both of the coast stations are authorized to communicate; and

(2) Other satisfactory point-to-point communication facilities between the coast stations are unavailable; and

(3) Coast stations which communicate with each other are not more than 160 km (100 miles) apart; and

(4) Harmful interference is not cause to mobile stations.

(c) A private coast station and associated marine utility stations serving

and located on a shipyard regularly engaged in construction or repair of commercial transport vessels or Government vessels are authorize to communicate between stations when they are licensed to the same entity and communications are limited to serving the needs of ships on a non-interference basis to other stations in the maritime mobile service. A separate showing is required.

§ 80.507 Scope of service.

(a) A private coast station or marine utility station using telephony serves the operational and business needs of ships including the transmission of safety communication.

(b) In areas where environmental communications are provided by U.S. Government stations or by public coast stations, private coast stations and marine utility stations on shore must not duplicate that service. In other areas, private coast stations and marine utility stations on shore may transmit weather and hydrographic information required for the ships with which they normally communicate. Private coast stations may provide environmental communication service in areas where adequate service is not available.

(c) Each marine utility station on shore must be operated as a private coast station except that it may be operated at temporary unspecified locations. Marine utility stations on ships are operated as ship stations.

(d) Each private coast station is authorized by rule to use hand-held marine radios in the vicinity of the station's fixed transmitter site on those frequencies assigned to the private coast station. Hand-held communications must conform to those normally permitted under a marine utility station authorization and must be limited to contact with the associated private coast station and ship stations in the vicinity of the private coast station.

[51 FR 31213, Sept. 2, 1986, as amended at 62 FR 40307, July 28, 1997]

§ 80.509 Frequency assignment.

Frequencies assignable to private coast stations and marine utility stations are listed in subpart H.

§ 80.513 Frequency coordination.

(a) Except as provided in paragraphs (b) and (c) of this section each application for a new VHF private coast station license or modification of an existing license to be located in an area having a recognized frequency coordinating committee must be accompanied by:

(1) A report based on a field study, indicating the degree of probable interference to existing stations operating in the same area. The applicant must consider all stations operating on the working frequency or frequencies requested or assigned within 80 km (50 miles) of the proposed station location, and

(2) The report must include a statement that all existing licensees on the frequency within 80 km (50 miles) and the frequency coordinating committee have been notified of the applicant's intention to file an application. The notice of intention to file must provide the licensees concerned and the advisory committee with the following information: The frequency and emission; transmitter location and power; and the antenna height proposed by the applicant.

(b) Applications for modification need not be accompanied by the field study where the modification does not involve any change in frequency(ies), power, emission, antenna height, antenna location or area of operation.

(c)(1) In lieu of the field study, the applicant may acquire a statement from a frequency coordinating committee. The applicant must certify on the application concerning the recommendations of the coordinating committee. The committee must comment on the requested frequency or the proposed changes in the authorized station and give an opinion regarding the probable interference to existing stations. The committee must consider all stations operating on the requested frequency within 80 km (50 miles) of the proposed station location. The frequency coordinating committee statement must also recommend a frequency which will result in the least amount of interference to proposed and existing stations. Committee recommendations may also include comments on technical factors and may

recommend restrictions to minimize interference.

(2) A frequency coordinating committee must be representative of all persons who are eligible for VHF private coast stations within the service area of the recognized frequency coordinating committee. A statement of organization, service area and composition of the committee must be submitted to the Commission for approval. The functions of any coordinating committee are purely advisory to the applicant and the Commission. Its recommendations are not binding upon either the applicant or the Commission.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 68956, Dec. 14, 1998]

§ 80.514 Marine VHF frequency coordinating committee(s).

This section contains the names of organizations that have been recognized by the Commission to serve as marine VHF frequency coordinating committees for their respective areas.

(a) The Southern California Marine Radio Council serves the California counties of Santa Barbara, Kern, San Bernardino, Ventura, Los Angeles, Orange, Riverside, San Diego, Imperial and the Channel Islands.

(b) The North Pacific Marine Radio Council serves the following counties in the State of Washington: Clallam, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston, and Whatcom.

[52 FR 35246, Sept. 18, 1987, as amended at 56 FR 6583, Feb. 19, 1991; 60 FR 50122, Sept. 28, 1995; 63 FR 68956, Dec. 14, 1998]

§ 80.515 Limitations on use.

A private coast station or marine utility station using telephony must:

(a) Not be used for public correspondence;

(b) Not be used to transmit program material for radio broadcasting; and

(c) Not be used to transmit press material or news items which are not required to serve the needs of ships.

§ 80.517 Time limitation on communication.

All communication engaged in by private coast stations and marine utility stations must be limited to the minimum practicable transmission time. Each station licensee must employ standardized operating practices and procedures.

§ 80.519 Station identification.

(a) Stations must identify transmissions by announcing in the English language the station's assigned call sign. In lieu of the identification of the station by voice, the official call sign may be transmitted by tone-modulated telegraphy in international Morse Code manually or by means of an automatic device approved by the Commission. Transmissions on the navigation frequency (156.650 MHz) by stations on drawbridges may be identified by use of the name of the bridge in lieu of the call sign. Identification must be made:

(1) At the beginning and end of each exchange of communications and;

(2) At intervals not exceeding 15 minutes whenever transmissions or communications are sustained for more than 15 minutes.

(b) Marine utility stations, private coast stations, and associated handheld radios, when exchanging communications, may be identified by a unit identifier in lieu of the call sign. Identification by transmission of the assigned call sign must be at the end of the exchange or at least once every 15 minutes.

[51 FR 31213, Sept. 2, 1986, as amended at 62 FR 40308, July 28, 1997]

Subpart L—Operational Fixed Stations

§ 80.551 Applicability.

This subpart contains rules applicable to operational fixed stations.

§ 80.553 Supplemental eligibility requirements.

An applicant for an operational fixed station must certify that:

(a) The applicant is the licensee of a coast station;

(b) Other suitable telecommunications facilities are not available to satisfy coast station requirements.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 68956, Dec. 14, 1998]

§ 80.555 Scope of communication.

An operational fixed station provides control, repeater or relay functions for its associated coast station.

§ 80.557 Assignment and use of frequencies.

The specific frequencies for these stations are listed in subpart H of this part.

§ 80.559 Licensing limitations.

Operational fixed stations are subject to the following licensing limitations:

(a) A maximum of four frequencies will be assigned.

(b) Stations will not be authorized when applications indicate less than 16 km (10 miles) separation between a proposed station and a TV transmitter operating on either Channel 4 or 5, or from the post office of a community in which either channel is assigned but not in operation.

(c) Stations located between 16 km (10 miles) and 128 km (80 miles) of a TV transmitter operating on either Channel 4 or 5, or from the post office of a community in which either channel is assigned but not in operation, are secondary to TV operations within the Grade B service contour.[1]

[51 FR 31213, Sept. 2, 1986; 51 FR 34984, Oct. 1, 1986; as amended at 54 FR 40059, Sept. 29, 1989]

Subpart M—Stations in the Radiodetermination Service

§ 80.601 Scope of communications.

Stations on land in the Maritime Radiodetermination Service provide a radionavigation or radiolocation service for ships.

[1] OET Bulletin No. 67, March 1988, entitled ''Potential Interference from Operational Fixed Stations in the 72–76 MHz Band to Television Channels 4 and 5'' describes an analytical model that can be used to calculate the potential interference that might result from a given fixed station operation. Copies of the bulletin may be obtained from the Commission's current duplication contractor. Information concerning the current duplication contractor may be obtained from the Office of Public Affairs, Consumer Assistance and Small Business Division, Telephone (202) 632–7000.

§ 80.603 Assignment and use of frequencies.

The frequencies available for assignment to shore radionavigation/radiolocation stations are contained in subpart H of this part.

§ 80.605 U.S. Coast Guard coordination.

(a) Radionavigation coast stations operated to provide information to aid in the movement of any ship are private aids to navigation. Before submitting an application for a radionavigation station, an applicant must obtain written permission from the cognizant Coast Guard District Commander at the area in which the device will be located. The Commission may request an applicant to provide documentation as to this fact. Note: Surveillance radar coast stations do not require U.S. Coast Guard approval.

(b) Coast station transponders (i.e., radar beacons, or racons) operating in the band 2900–3100 or 9300–9500 MHz shall meet the requirements of ITU–R M.824–3 (incorporated by reference, see § 80.7). Applications for certification of these transponders must include a description of the technical characteristics of the equipment including the scheme of interrogation and the characteristics of the transponder response, and test results demonstrating the device meets each applicable requirement of this ITU–R recommendation.

(c) The use of ship station transponders in the band 2900–3100 or 9300–9500 MHz other than those described in §§ 80.1085(a)(3) and 80.1095(b) is prohibited.

[52 FR 7419, Mar. 11, 1987, as amended at 63 FR 36607, July 27, 1998; 63 FR 68956, Dec. 14, 1998; 68 FR 46972, Aug. 7, 2003; 76 FR 67615, Nov. 2, 2011]

Subpart N—Maritime Support Stations

§ 80.651 Supplemental eligibility requirements.

(a) An applicant for a maritime support station must demonstrate a requirement for training personnel associated with the maritime service or for the testing, demonstration or maintenance of ship or coast radio equipment.

(b) [Reserved]

§ 80.653 Scope of communications.

(a) Maritime support stations are land stations authorized to operate at permanent locations or temporary unspecified locations.

(b) Maritime support stations are authorized to conduct the following operations:

(1) Training of personnel in maritime telecommunications;

(2) Transmissions necessary for the test and maintenance of maritime radio equipment at repair shops and at temporary unspecified locations;

(3) Transmissions necessary to test the technical performance of the licensee's public coast station(s) radiotelephone receiver(s); and

(4) Transmissions necessary for radar/racon equipment demonstration.

[51 FR 31213, Sept. 2, 1986, as amended at 62 FR 40308, July 28, 1997]

§ 80.655 Use of frequencies.

(a) The frequencies available for assignment to maritime support stations are described or listed in:

(1) Section 80.373 for scope of communications described in § 80.653(b)(1);

(2) Sections 80.373 and 80.385 for scope of communications described in § 80.653(b)(2); and

(3) Section 80.389 for scope of communications described in § 80.653 (b)(3) and (4).

(b) Frequencies must be used only on a secondary, non-interference basis to operational maritime communications.

(c) Use of frequencies assigned to services other than the maritime radiolocation service is limited to one hour per twenty four hour period.

[51 FR 31213, Sept. 2, 1986, as amended at 52 FR 35245, Sept. 18, 1987]

§ 80.659 Technical requirements.

The authorized frequency tolerance, class of emission, bandwidth, and transmitter power for maritime support stations are contained in subpart E of this part under the category associated with the intended use except for power limitations imposed upon stations operating within the scope of § 80.653(b)(3), which are further limited by the provisions of § 80.215(f).

Subpart O—Alaska Fixed Stations

§ 80.701 Scope of service.

There are two classes of Alaska Fixed stations. Alaska-public fixed stations are common carriers, open to public correspondence, which operate on the paired duplex channels listed in subpart H of this part. Alaska-private fixed stations may operate on simplex frequencies listed in subpart H of this part to communicate with other Alaska private fixed stations or with ship stations, and on duplex frequencies listed in subpart H of this part when communicating with the Alaska-public fixed stations. Alaska-private fixed stations must not charge for service, although third party traffic may be transmitted. Only Alaska-public fixed stations are authorized to charge for communication services.

§ 80.703 Priority of distress and other signals.

Alaska-public fixed stations, when operating on an authorized carrier frequency which is also used by the maritime mobile service, must give priority to distress, urgency or safety signals, or to any communication preceded by one of these signals.

§ 80.705 Hours of service of Alaska-public fixed stations.

Each Alaska-public fixed station whose hours of service are not continuous must not suspend operations before having concluded all communications of an emergency nature.

§ 80.707 Cooperative use of frequency assignments.

(a) Only one Alaska-public fixed station will be authorized to serve any area whose point-to-point communication needs can be adequately served by a single radio communication facility.

(b) Each radio channel authorized for use by an Alaska-private fixed station is available on a shared basis only. All station licensees must cooperate in the use of their respective frequency assignments to minimize interference.

§ 80.709 Frequencies available.

Frequencies assignable to Alaska fixed stations are listed in subpart H of this part.

§ 80.711 Use of U.S. Government frequencies.

Alaska-public fixed stations may be authorized to use frequencies assigned to U.S. Government radio stations for communications with Government stations or for coordination of Government activities.

Subpart P—Standards for Computing Public Coast Station VHF Coverage

§ 80.751 Scope.

This subpart specifies receiver antenna terminal requirements in terms of power, and relates the power available at the receiver antenna terminals to transmitter power and antenna height and gain. It also sets forth the co-channel interference protection that VHF public coast station geographic area licensees must provide to incumbents and to other VHF public coast station geographic area licensees.

[64 FR 26887, May 18, 1999]

§ 80.753 Signal strength requirements at the service area contour.

(a) The requirements for reception by a marine VHF shipboard receiver are satisfied if the field strength from the coast station, calculated in accordance with § 80.771 is at least +17 dBu above one microvolt.

(b) These field strengths, voltages and powers at the receiver input are equivalent:

(1) −132 dBW (decibels referred to 1 watt).

(2) 1.8 microvolts across 50 ohms.

(3) +17 dBu (decibels referred to 1 microvolt per meter).

(4) 7 microvolts per meter.

§ 80.755 Applicability.

Applications for maritime frequencies in the 156–162 MHz band must include a map showing the proposed service area contour. The service area contour must be computed in accordance with the following procedures.

§ 80.757 Topographical data.

(a) In the preparation of profile graphs and in determining the location and height above sea level of the antenna site, the elevations or contour intervals must be taken from U.S. Geological Survey topographic quadrangle maps, U.S. Army Corps of Engineers maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which maps are available. If such maps are not published for the area in question, the next best topographic information must be used. The maps used must include the principal area to be served. U.S. Geological Survey topographic quadrangle maps may be obtained from the Eastern Distribution Branch, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202, for maps of areas east of the Mississippi River, including Minnesota, Puerto Rico, and the Virgin Islands, and from the Western Distribution Branch, U.S. Geological Survey, Federal Center, Denver CO 80225, for maps of areas west of the Mississippi River, including Alaska, Hawaii, Louisiana, Guam and American Samoa. Sectional aeronautical charts are available from the Distribution Division, National Ocean Service, Riverdale, MD 20840.

(b) In lieu of maps, the average terrain elevation may be computer generated, using elevations from a 30 second point or better topographic data file such as those available for the U.S. Geological Survey's National Geographic Information Center or the National Oceanic and Atmospheric Administration's National Geophysical Data Center. In case of dispute maps will be used to determine the correct value.

§ 80.759 Average terrain elevation.

(a)(1) Draw radials from the antenna site for each 45 degrees of azimuth starting with true north. Any such radial which extends entirely over land from the antenna site to the point of +17 dBu field strength need not be drawn.

(2) If the distance from the antenna site to the point of +17 dBu field strength between any of the 45 degrees radials would be less than the distances calculated along these radials, an additional radial between such adjacent radials must be plotted and calculations made in each case. Each additional radial must be that radial along which it appears by inspection that transmission loss would be greatest.

(b) Draw a circle of 16 km (10 statute mile) radius using the antenna site as the center. Divide each radial into 320 meter (0.2 statute mile) increments inside the circumference to the 3.2 km (2 statute mile) point.

(c) Calculate the height above sea level of each 320 meter (0.2 statute mile) division by interpolating the contour intervals of the map, and record the value.

(d) Average the values by adding them and dividing by the number of readings along each radial.

(e) Calculate the height above average terrain by averaging the values calculated for each radial.

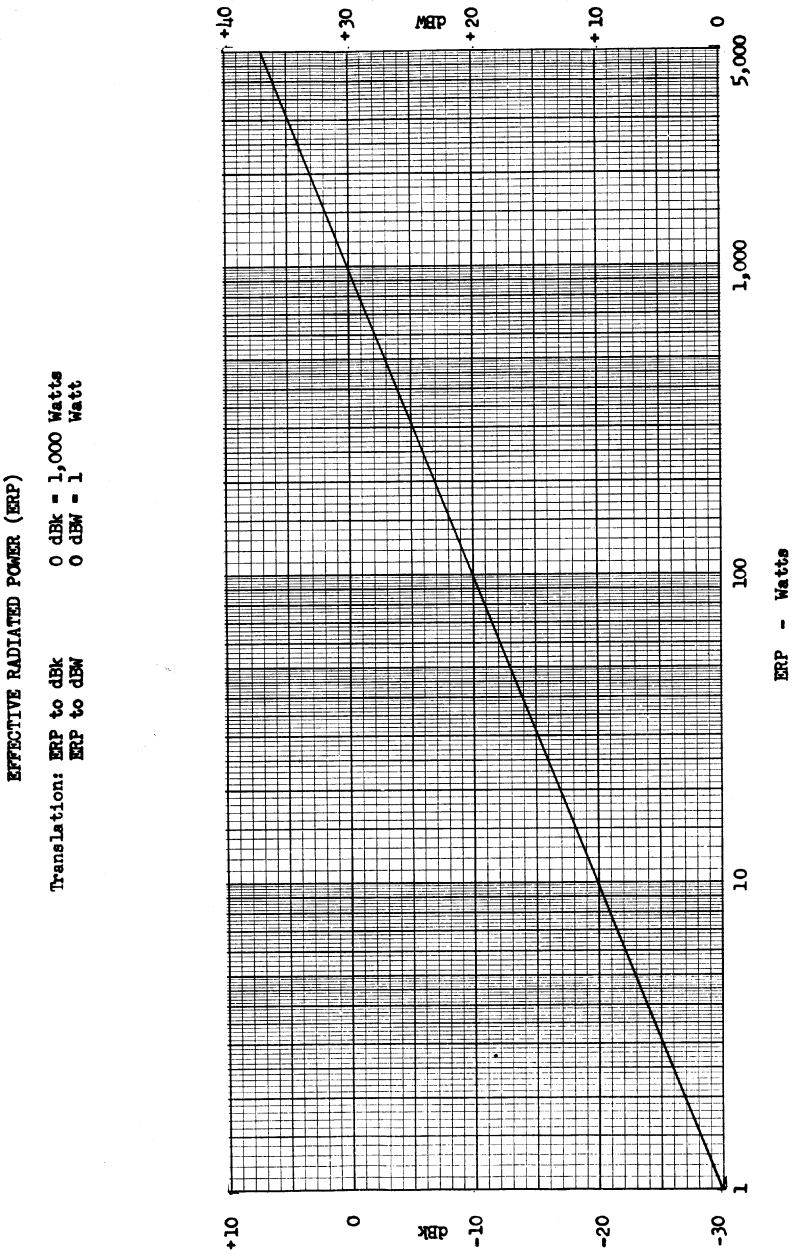
[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44953, Aug. 25, 1993]

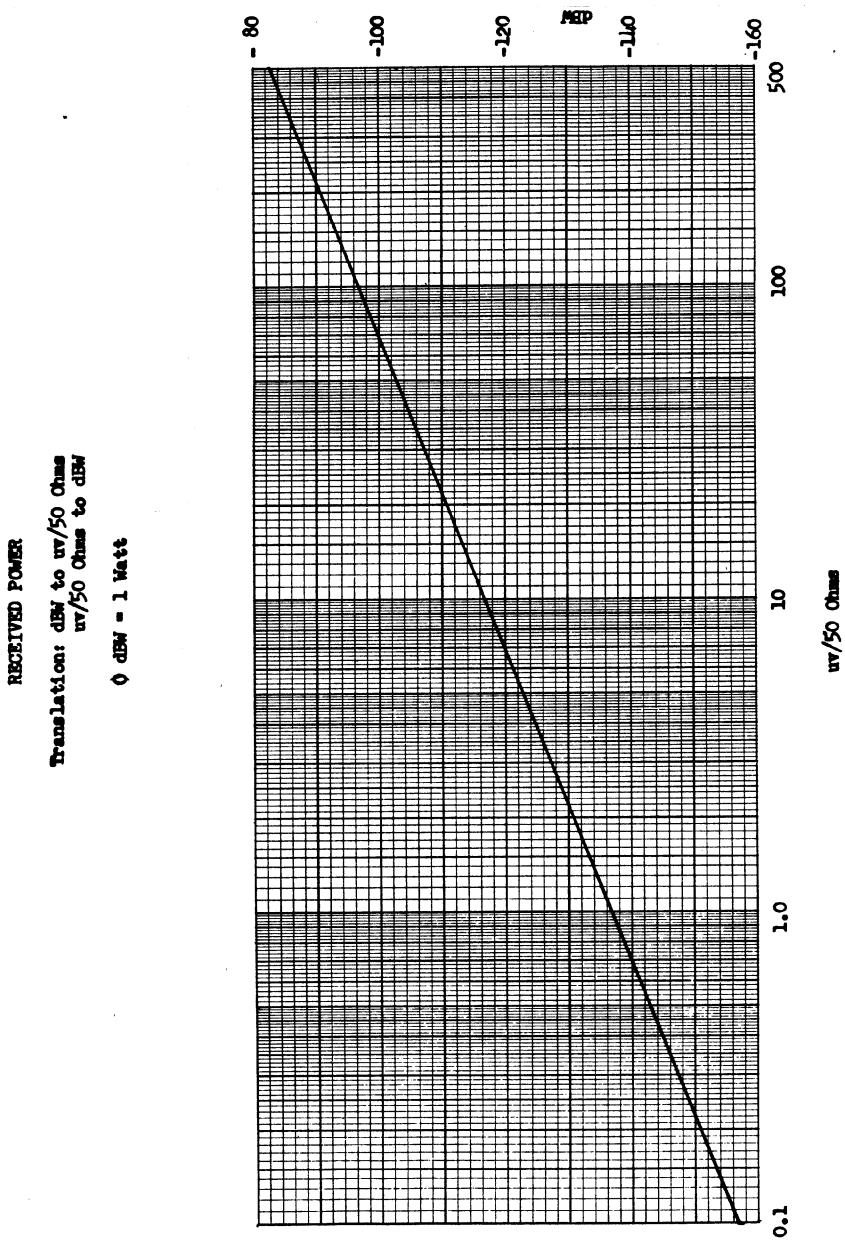
§ 80.761 Conversion graphs.

The following graphs must be employed where conversion from one to the other of the indicated types of units is required.

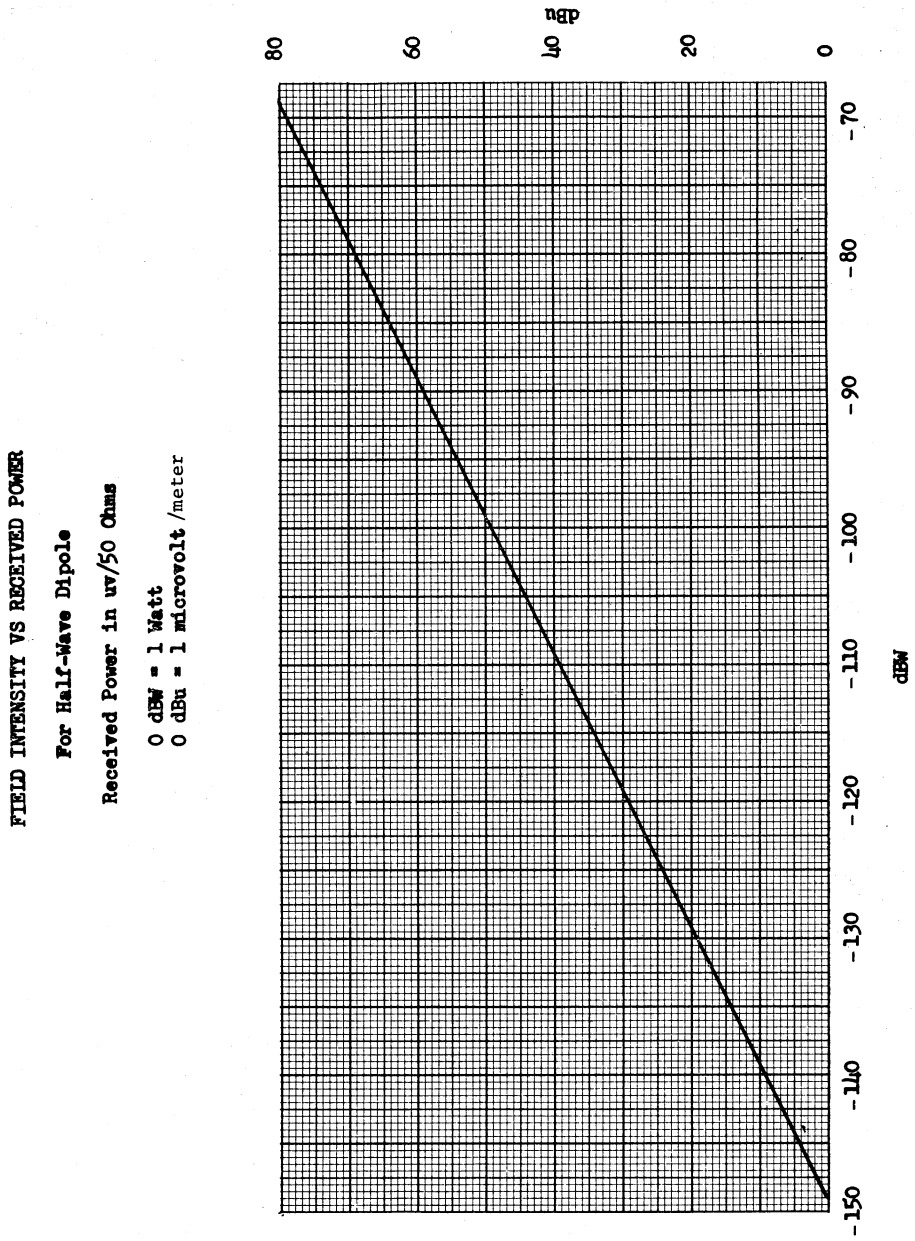
(a) *Graph 1.* To convert effective radiated power in watts to dBk or to dBW, find the power in watts on the horizontal axis. Move vertically along the line representing the power to the diagonal line. Move horizontally from the diagonal to the right side to read dBW and to the left to read dBk.

(b) *Graph 2.* To convert microvolts across 50 ohms to received power in dBW, find the signal in microvolts on the horizontal axis. Move vertically to the diagonal line, then move right horizontally to read dBW.


EFFECTIVE RADIATED POWER (ERP)
Translation: ERP to dBk 0 dBk = 1,000 Watts
ERP to dBW 0 dBW = 1 Watt
+40
+30
dBW
+20
+10
0
+10
0
dBk
-10
-20
-30
1
10
100
1,000
5,000
ERP - Watts



(c) *Graph 3.* To convert received power in dBW to field intensity in dBu find the received power in dBW on the horizontal axis. Move vertically to the diagonal line, then move right horizontally to read dBu.



§ 80.763 Effective antenna height.

The effective height of the antenna is the vertical distance between the center of the radiating system above the mean sea level and the average terrain elevation.

§ 80.765 Effective radiated power.

Effective radiated power is used in computing the service area contour. The effective radiated power is derived from the transmitter output power, loss in the transmission system including duplexers, cavities, circulators, switches and filters, and the gain relative to a half-wave dipole of the antenna system.

§ 80.767 Propagation curve.

The propagation graph, § 80.767 Graph 1, must be used in computing the service area contour. The graph provides data for field strengths in dBu for an effective radiated power of 1 kW, over sea water, fresh water or land (smooth earth); transmitting antena heights of 4,800, 3,200, 1,600, 800, 400, 200, and 100 feet; based on a receiving antenna height of 9 meters (30 feet), for the 156–162 MHz band. The use of this is described in this section.

(a) Calculate the effective radiated power of the coast station, Ps in dB referred to 1 kW (dBk), as follows:

$$P_s = Pt + G - L$$

where,

Pt=Transmitter output power in dB referred to 1 kW: Transmitter output power in watts is converted to dBk by Pt=10 [log10 (Power in watts)] − 30. Also see § 80.761 Graph 1 for a conversion graph.

G=Antenna gain in dB referred to a standard half-wave dipole, in the direction of each plotted radial, and

L=Line losses between the transmitter and the antenna, in dB.

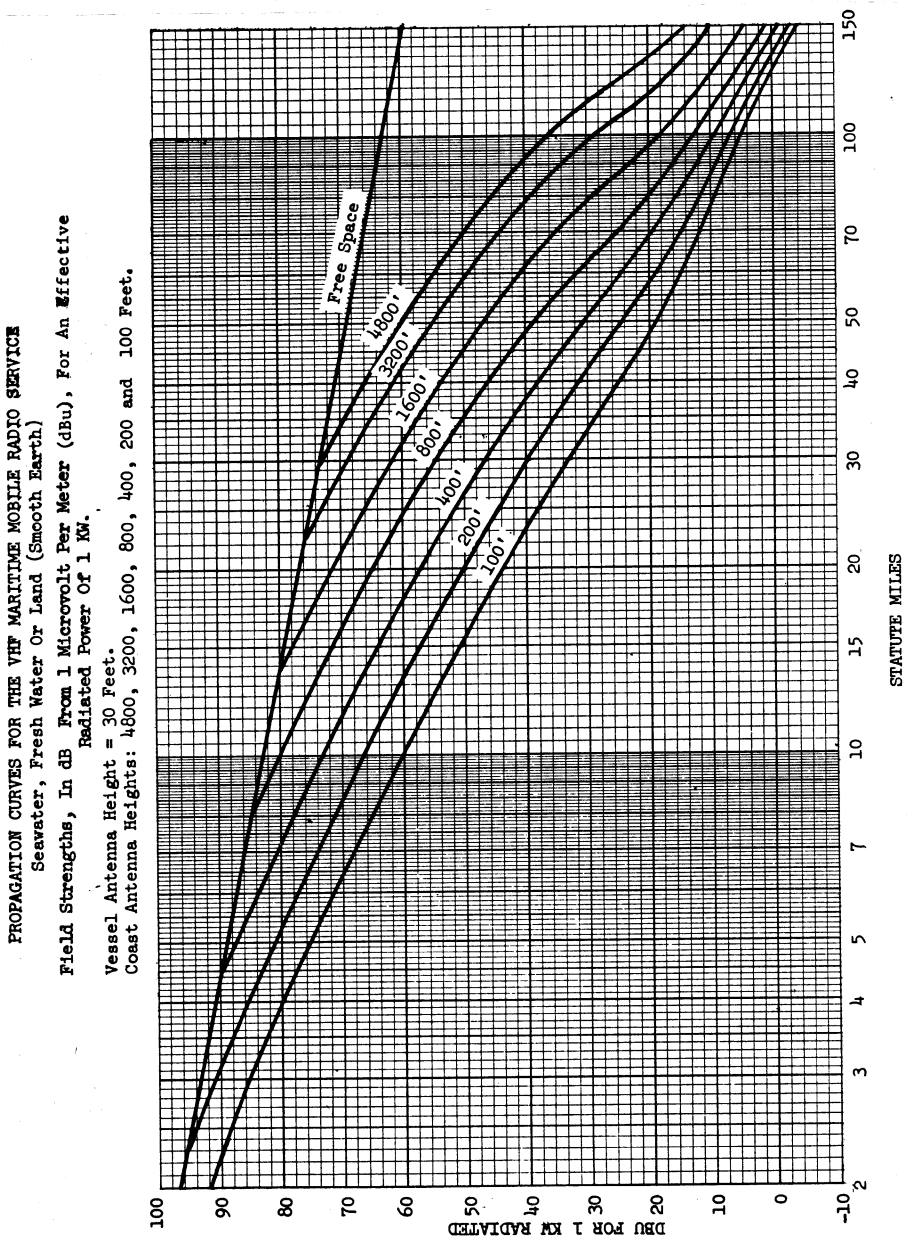
NOTES: 1. To determine field strengths where the distance is known, for effective radiated powers other than 1kW (0 dBk): Enter the graph from the ''statute miles'' scale at the known distance, read up to intersection with the curve for the antenna height, read left to the ''dBu for 1 kW radiated'' scale and note the referenced field strength (Fe). The value of the actual field strength (F) in dBu will be F=Fe+Ps where Ps is the effective radiated power calculated above.

2. To determine distance, where the actual field strength is specified, for effective radiated powers other than 0 dBk: The value of the field referenced strength will be Fe=F − Ps in dBu. Enter the graph, from the ''dBu for 1 kW radiated'' scale at the corrected value of Fe, read right to intersection with the antenna height, read down to ''statute miles'' scale.

(b) Determine the antenna height. For antenna heights between the heights for which this graph is drawn, use linear interpolation; assume linear height-gain for antennas higher than 4,800 feet.

(c) For receiver antenna heights lower than 9 meters (30 feet), assume that the field strength is the same as at 9 meters (30 feet).

(d) Assume that propagation over fresh water or over land is the same as that over sea water.



§ 80.769 Shadow loss.

Where the transmission path is obstructed the received signal must be adjusted to include shadow loss. Attenuation due to shadowing must be taken from § 80.769 Graph 1, as follows:

(a) Inspect the map(s) to determine if a hill(s) obstructs an imaginary line of

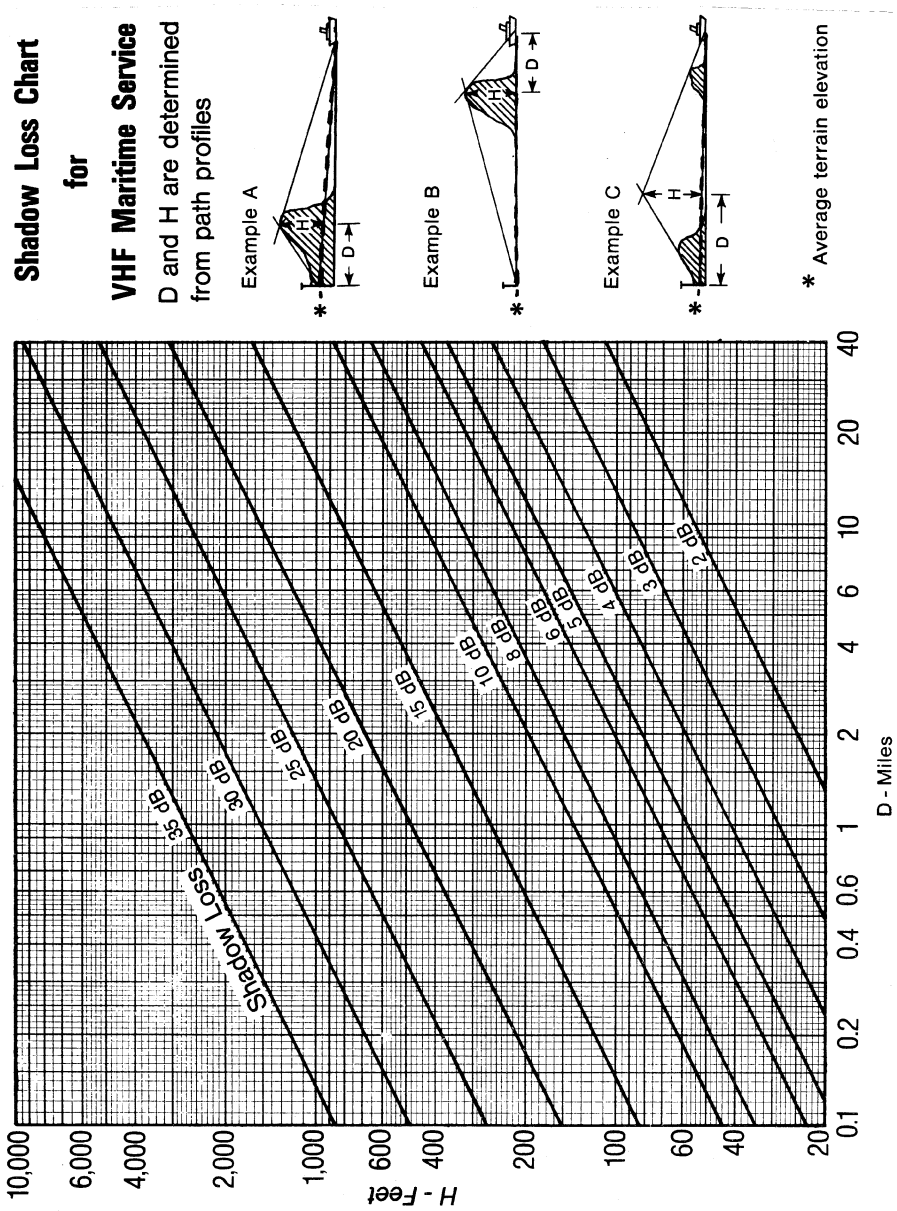
sight (dashed line on illustrative profiles of § 80.769 Graph 1 from the average terrain elevation at the coast station antenna to the water level at the ship location. If average terrain elevation exceeds the actual ground elevation at the antenna site, the latter elevation must be used as the average terrain elevation.

(b) If a hill appears to obstruct the radio path, plot the antenna site elevation, the obstruction elevation and the height of the ship station on rectangular coordinate paper using elevation above mean sea level as the vertical scale and distance in statute miles as the horizontal scale. Then draw a straight line between the antenna and the ship.

(c) If a hill obstructs the imaginary line of sight, determine its height (H) above the imaginary line and its distance (D) from either the coast or ship station, whichever is nearer, as illustrated by examples ''A'' and ''B'' on Graph 1.

(d) Read the shadow loss from this Graph 1 and subtract that loss from the computed received signal.

(e) Where more than one hill obstructs the transmission path, determine the height and position of a single equivalent hill, as illustrated by example ''C'' on this graph. Read the shadow loss from this graph for the equivalent hill.



§80.771 Method of computing coverage.

Compute the +17 dBu contour as follows:

(a) Determine the effective antenna height above mean sea level according to the procedures in §§80.757–80.761.

(b) Determine the effective radiated power according to §80,765. Determine

for each radial the distance from the antenna site to the +17 dBu point of field strength using procedures of §§ 80.765 and 80.767.

(c) Plot on a suitable map each point of +17 dBu field strength for all radials and draw the contour by connecting the adjacent points by a smooth curve.

§ 80.773 Co-channel interference protection.

(a) Where a VHF public coast station geographic area licensee shares a frequency with an incumbent VHF public coast station licensee, the ratio of desired to undesired signal strengths must be at least 12 dB within the service area of the station.

(b) Where a VHF public coast station geographic area licensee shares a frequency with an incumbent private land mobile radio licensee, the VHF public coast station geographic area licensee must provide at least 10 dB protection to the PLMR incumbent's predicted 38 dBu signal level contour. The PLMR incumbent's predicted 38 dBu signal level contour is calculated using the F(50, 50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10a) of this chapter, with a 9 dB correction factor for antenna height differential, and is based on the licensee's authorized effective radiated power and antenna height-above-average-terrain.

(c) VHF public coast station geographic area licensees are prohibited from exceeding a field strength of +5 dBu (decibels referenced to 1 microvolt per meter) at their service area boundaries, unless all the affected VHF public coast station geographic area licensees agree to the higher field strength.

[63 FR 40065, July 27, 1998, as amended at 64 FR 26887, May 18, 1999]

Subpart Q [Reserved]

Subpart R—Technical Equipment Requirements for Cargo Vessels Not Subject to Subpart W

§ 80.851 Applicability.

The radiotelephone requirements of this subpart are applicable to all compulsory ships which are not required to comply with subpart W of this part in total or in part because they have received an exemption from all or some of the subpart W provisions.

[68 FR 46973, Aug. 7, 2003]

§ 80.853 Radiotelephone station.

(a) The radiotelephone station is a radiotelephone installation and other equipment necessary for the proper operation of the installation.

(b) The radiotelephone station must be installed to insure safe and effective operation of the equipment and to facilitate repair. Adequate protection must be provided against the effects of vibration, moisture, and temperature.

(c) The radiotelephone station and all necessary controls must be located at the level of the main wheelhouse or at least one deck above the ship's main deck.

(d) The principal operating position of the radiotelephone station must be in the room from which the ship is normally steered while at sea. In installations on cargo ships of 300 gross tons and upwards but less than 500 gross tons on which the keel was laid prior to January 1, 1965, the location of the principal operating controls may be in a room adjoining and opening into the room from which the vessel is normally steered while at sea. If the station can be operated from any location other than the principal operating position, a positive means must be provided at the principal operating position to take full control of the station.

[51 FR 31213, Sept. 2, 1986, as amended at 68 FR 46973, Aug. 7, 2003]

§ 80.854 Radiotelephone installation.

The radiotelephone installation includes:

(a) A radiotelephone transmitter;

(b) A receiver as specified in § 80.858(a);

(c) A main source of energy;

(d) A reserve source of energy, when required by § 80.860(a);

(e) An antenna system.

[51 FR 31213, Sept. 2, 1986, as amended at 76 FR 67615, Nov. 2, 2011]

§ 80.855 Radiotelephone transmitter.

(a) The transmitter must be capable of transmission of H3E and J3E emission on 2182 kHz, and J3E emission on 2638 kHz and at least two other frequencies within the band 1605 to 3500 kHz available for ship-to-shore or ship-to-ship communication.

(b) The duty cycle of the transmitter must permit transmission of the international radiotelephone alarm signal.

(c) The transmitter must be capable of transmitting clearly perceptible signals from ship to ship during daytime under normal conditions over a range of 150 nautical miles.

(d) The transmitter complies with the range requirement specified in paragraph (c) of this section if:

(1) The transmitter is capable of being matched to actual ship station transmitting antenna meeting the requirements of § 80.863; and

(2) The output power is not less than 60 watts peak envelope power for H3E and J3E emission on the frequency 2182 kHz and for J3E emission on the frequency 2638 kHz into either an artificial antenna consisting of a series network of 10 ohms resistance and 200 picofarads capacitance, or an artificial antenna of 50 ohms nominal impedance. An individual demonstration of the power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required.

(e) The transmitter must provide visual indication whenever the transmitter is supplying power to the antenna.

(f) The transmitter must be protected from excessive currents and voltages.

(g) A durable nameplate must be mounted on the transmitter or made an integral part of it showing clearly the name of the transmitter manufacturer and the type or model of the transmitter.

(h) An artificial antenna must be provided to permit weekly checks of the automatic device for generating the radiotelephone alarm signal on frequencies other than the radiotelephone distress frequency.

§ 80.858 Radiotelephone receiver.

(a) The receiver required by § 80.854(a) of this part must be capable of reception of H3E and J3E emissions on the radiotelephone distress frequency. The receiver must be capable of reception of J3E emissions on 2638 kHz and the receiving frequencies associated with the transmitting frequencies authorized pursuant to § 80.855(a).

(b) One or more loudspeakers capable of being used to maintain the distress frequency (2182 kHz) watch at the principal operating position and at any other place where the listening watch is performed must be provided.

(c) The receiver required by paragraph (a) of the section must:

(1) Have a sensitivity of 50 microvolts;

(2) Be capable of operation when energized by the main source of energy, and by the reserve source of energy if a reserve source is required by § 80.860(a);

(3) Be protected from excessive currents and voltages;

(4) Be provided with a nameplate showing the name of the receiver manufacturer and the type or model.

(d) The sensitivity of a receiver is the strength in microvolts of a signal, modulated 30 percent at 400 cycles per second, required at the receiver input to produce an audio output of 50 milliwatts to the loudspeaker with a signal-to-noise ratio of at least 6 decibels. Evidence of a manufacturer's rating or a demonstration of the sensitivity of a required receiver computed on this basis must be furnished upon request of a Commission representative.

[51 FR 31213, Sept. 2, 1986, as amended at 73 FR 4487, Jan. 25, 2008]

§ 80.859 Main power supply.

(a) The main power supply must simultaneously energize the radiotelephone transmitter at its required antenna power and the required receivers. Under this load condition the voltage of the main power supply at the radiotelephone input terminals must not deviate from its rated potential by more than 10 percent on ships completed on or after July 1, 1941, nor by more than 15 percent on ships completed before that date.

(b) Means must be provided for charging any batteries used as a main power supply. A continuous indication of the

rate and polarity of the charging current must be provided during charging of the batteries.

§ 80.860 Reserve power supply.

(a) When the main power supply is not on the same deck as the main wheelhouse or at least one deck above the vessel's main deck, a reserve power supply must be provided and must be so situated. The location of the reserve power supply must be located as near to the required transmitter and receivers as practicable and meet all applicable rules and regulations of the United States Coast Guard.

(b) The reserve power supply must be independent of the propelling power of the ship and of any other electrical system, and must simultaneously energize the radiotelephone transmitter at its required antenna power, the required receivers, the emergency light and the automatic radiotelephone alarm signal generator. The reserve power supply must be available at all times.

(c) The reserve power supply may be used to energize the bridge-to-bridge radiotelephone and the VHF radiotelephone installation required by § 80.871.

(d) All circuits connected to the reserve power supply must be protected from overloads.

(e) Means must be provided for charging any batteries used as a reserve power supply. A continuous indication of the rate and polarity of the charging current during charging of the batteries must be provided.

(f) The cooling system of each internal combustion engine used as a part of the reserve power supply must be adequately treated to prevent freezing or overheating consistent with the season and route to be traveled by the particular vessel involved.

(g) The reserve power supply must be available within 1 minute.

[51 FR 31213, Sept. 2, 1986; 52 FR 35246, Sept. 18, 1987]

§ 80.861 Required capacity.

If the main power supply or the reserve power supply provided for the purpose of complying with §§ 80.859 and 80.860 consists of batteries, the batteries must have sufficient reserve capacity available at all times while the vessel is leaving or attempting to leave a harbor or port for a voyage in the open sea, and while being navigated in the open sea outside of a harbor or port, to permit operation of the radiotelephone transmitter and the required receivers for at least 6 hours continuously under normal working conditions.

§ 80.862 Proof of capacity.

(a) When directed by the Commission or its authorized representative, the station licensee must prove that the requirements of § 80.861 are met.

(b) Proof of the ability of a battery used as a main or reserve source to operate continuously for 6 hours can be established by a discharge test over a prescribed period of time, when supplying power at the voltage required for normal and operation to an electrical load as prescribed by paragraph (d) of this section.

(c) When the reserve power supply is an engine-driven generator, proof of the adequacy of the engine fuel supply to operate the unit contiuously for 6 hours can be established by measuring the fuel consumption for 1 hour when supplying power, at the voltage required for normal operation, to an electrical load as prescribed by paragraph (d) of this section.

(d) In determining the electrical load to be supplied, the following formula must be used:

(1) One-half of the current of the required transmitter at its rated power output.

(2) One fourth of the current of the automatic radiotelephone alarm signal generator; plus

(3) Current of receiver; plus

(4) Current of emergency light(s); plus

(5) Current of the bridge-to-bridge transceiver when connected.

(e) At the conclusion of the test specified in paragraphs (b) and (c) of this section, no part of the main or reserve power supply must have an excessive temperature rise, nor must the specific gravity or voltage of any battery be below 90 percent discharge point of the fully charged value.

§ 80.863 Antenna system.

(a) An antenna system must be installed which is as nondirectional and as efficient as is practicable for the transmission and reception of radio ground waves over seawater. The installation and construction of the required antenna must insure operation in time of emergency.

(b) If the required antenna is suspended between masts or other supports liable to whipping, a safety link which, under heavy stress, will operate to greatly reduce such stress without breakage of the antenna, the halyards, or other antenna-supporting elements, must be installed.

(c) When an electrical ground connection is used as an element of the antenna system, the connection must be efficient.

§ 80.864 Emergency electric lights.

(a) Emergency electric light(s) must be installed to illuminate the operating controls of the radiotelephone installation at the principal operating position, the card of instructions, and the radiotelephone station clock if the latter is not self-illuminated.

(b) The emergency electric light(s) must be energized from the reserve power supply, if a reserve power supply is required. In cases where a reserve power supply is not required, the emergency lights must be energized independently of the system which supplies the normal lighting.

§ 80.865 Radiotelephone station clock.

A clock having a face of at least 12.7 cm (5 in.) in diameter must be mounted in a position that can be observed from the principal operating position.

[58 FR 44953, Aug. 25, 1993]

§ 80.866 Spare antenna.

A spare transmitting antenna completely assembled for immediate erection must be provided. If the installed transmitting antenna is suspended between supports, this spare antenna must be a single-wire transmitting antenna of the same length and must also include suitable insulators.

§ 80.867 Ship station tools, instruction books, circuit diagrams and testing equipment.

(a) Each ship station must be provided with such tools, testing equipment, instruction books and circuit diagrams to enable the radiotelephone installation to be maintained in efficient working condition while at sea. Each ship station licensee must compile a list of spare parts, tools, test equipment and circuit diagrams it considers necessary for compliance with this requirement. This list must be available at inspection. The Commission may consider equipment manufacturer lists of recommended spare parts, tools, test equipment, and repair circuit diagrams in determining compliance with this subsection. These items must be located convenient to the radio room.

(b) The testing equipment must include an instrument or instruments for measuring A.C. volts, D.C. volts and ohms.

§ 80.868 Card of instructions.

A card of instructions giving a clear summary of the radiotelephone distress procedure must be securely mounted and displayed in full view of the principal operating position.

§ 80.869 Test of radiotelephone station.

Unless the normal use of the required radiotelephone station demonstrates that the equipment is operating, a test communication on a required or working frequency must be made each day the ship is navigated. When this test is performed by a person other than the master and the equipment is found to be defective the master must be promptly notified.

§ 80.871 VHF radiotelephone station.

(a) All passenger ships irrespective of size and all cargo ships of 300 gross tons and upwards subject to part II of title III of the Communications Act or to the Safety Convention are required to carry a VHF radiotelephone station complying with this subpart. Ships subject only to the Communications Act may use a VHF radiotelephone installation meeting the technical standards of the Bridge-to-Bridge Act to satisfy the watch requirements of

§ 80.305(a)(3) if the equipment can transmit and receive on 156.800 MHz.

(b) The VHF radiotelephone station must be installed to insure safe and effective operation of the equipment and facilitate repair. It must be protected against vibration, moisture and temperature.

(c) The principal operating position of the radiotelephone station must be in the room from which the ship is normally steered while at sea.

(d) The radiotelephone stations on ships subject to Part II of Title III of the Communications Act must be capable of operating on the frequency 156.800 MHz and in other respects meet the requirements of § 80.143. The radiotelephone stations on ships subject to the Safety Convention must be capable of operating in the simplex mode on the ship station transmitting frequencies specified in the frequency band 156.025 MHz to 157.425 MHz and in the semiduplex mode on the two frequency channels specified in the following table:

Channel designators	Transmitting frequencies (MHz)	
	Ship station	Coast station
60	156.025	160.625
01	156.050	160.650
61	156.075	160.675
02	156.100	160.700
62	156.125	160.725
03	156.150	160.750
63	156.175	160.775
04	156.200	160.800
64	156.225	160.825
05	156.250	160.850
65	156.275	160.875
06	156.300	.....
66	156.325	160.925
07	156.350	160.950
67	156.375	156.375
08	156.400	.....
68	156.425	156.425
09	156.450	156.450
69	156.475	156.475
10	156.500	156.500
11	156.550	156.550
71	156.575	156.575
12	156.600	156.600
72	156.625	.....
13	156.650	156.650
73	156.675	156.675
14	156.700	156.700
74	156.725	156.725
15	156.750	156.750
75	156.775	156.775
16	156.800	156.800
76	156.825	156.825
17	156.850	156.850
77	156.875	.....
18	156.900	161.500
78	156.925	161.525
19	156.950	161.550
79	156.975	161.575
20	157.000	161.600
80	157.025	161.625
21	157.050	161.650
81	157.075	161.675
22	157.100	161.700
82	157.125	161.725
23	157.150	161.750
83	157.175	161.775
24	157.200	161.800
84	157.225	161.825
25	157.250	161.850
85	157.275	161.875
26	157.300	161.900
86	157.325	161.925
27	157.350	161.950
87	157.375	161.975
28	157.400	162.000
88	157.425	162.025

[1] Guard band.

[51 FR 31213, Sept. 2, 1986; 52 FR 35246, Sept. 18, 1987, as amended at 54 FR 40059, Sept. 29, 1989; 73 FR 4487, Jan. 25, 2008]

§ 80.872 The VHF radiotelephone installation.

The VHF radiotelephone installation includes:

(a) A VHF radiotelephone transmitter,

(b) A VHF radiotelephone receiver,

(c) A power supply,

(d) An antenna system.

§ 80.873 VHF radiotelephone transmitter.

(a) The transmitter must be capable of transmission of G3E emission on 156.300 MHz and 156.800 MHz, and on frequencies which have been specified for use in a system established to promote safety of navigation. Vessels in waters of other Administrations are required to communicate on any channel designated by that Administration for navigational safety in the bands specified in § 80.871(d).

(b) The transmitter must be adjusted so that the transmission of speech normally produces peak modulation within the limits of 75 percent and 100 percent.

(c) The transmitter must deliver a carrier power between 8 and 25 watts into a 50 ohm effective resistance. Provision must be made for reducing the

carrier power to a value between 0.1 and 1.0 watts.

(d) The transmitter complies with the power output requirements specified in paragraph (c) of this section when:

(1) The transmitter is capable of being adjusted for efficient use with an actual ship station transmitting antenna meeting the requirements of § 80.876; and

(2) The transmitter has been demonstrated capable, with normal operating voltages applied, of delivering not less than 8 watts of carrier power into 50 ohms effective resistance over the frequency band specified in § 80.871(d). An individual demonstration of the power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required; and

(3) It is certificated as required by subpart F of this part.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 36607, July 7, 1998]

§ 80.874 VHF radiotelephone receiver.

(a) The receiver used for providing the watch for navaigational safety required by § 80.313 must be certificated by the Commission and capable of effective reception of G3E emission on the frequencies required by § 80.871(d) when connected to the antenna specified in § 80.876.

(b) The receiver must have a usable sensitivity of 0.5 microvolts.

(c) The receiver must deliver adequate audio output power to be heard in the ambient noise level likely to be expected on board ships with a loudspeaker and/or a telephone handset.

(d) In the simplex mode when the transmitter is activated the receiver output must be muted.

[51 FR 31213, Sept. 2, 1986, as amended at 63 FR 36607, July 7, 1998]

§ 80.875 VHF radiotelephone power supply.

(a) There must be readily available for use under normal load conditions a power supply sufficient to simultaneously energize the VHF transmitter at its required antenna power, and the VHF receiver. Under this load condition the voltage of the source of energy at the power input terminals of the VHF radiotelephone installation must not deviate from its rated value by more than 10 percent on ships completed on or after March 1, 1957, nor by more than 15 percent on ships completed before that date.

(b) When the power supply for the VHF radiotelephone installation consists of batteries, they must be installed in the upper part of the ship, secured against shifting with motion of the ship, capable of operating the installation for 6 hours, and accessible with not less than 26 cm (10 in.) head room.

(c) Means must be provided for charging any rechargeable batteries used in the ship's VHF radiotelephone installation. There must be provided a device which, during charging of the batteries, will give a continuous indication of the charging current.

(d) The VHF radiotelephone installation may be connected to the reserve power supply of a compulsorily fitted radiotelephone or radiotelegraph installation.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44953, Aug. 25, 1993]

§ 80.876 VHF radiotelephone antenna system.

A vertically polarized nondirectional antenna must be provided for VHF radiotelephone installations. The construction and installation of this antenna must insure proper operation in an emergency.

§ 80.877 Controls and indicators required for VHF radiotelephone installation.

The controls and indicators used on equipment of the VHF radiotelephone installation must meet the following standards:

(a) The size of controls must easily permit normal adjustment. The function and the setting of the controls must be clearly indicated.d

(b) Controls must be illuminated to permit satisfactory operation of the equipment.

(c) Means must be provided to reduce to extinction any light output from the equipment which could affect safety of navigation.

(d) An on/off switch must be provided for the entire installation with a visual indication that the installation is switched on.

(e) The equipment must indicate the channel number, as given in the Radio Regulations, to which it is tuned. It must allow the determination of the channel number under all conditions of external lighting. Channel 16 must be distinctively marked.

(f) The receiver must have a manual volume control and a squelch control.

(g) If the external controls are on a separate control unit and more than one such control unit is provided, the one on the bridge must have priority over the others. When there is more than one control unit, indication must be given to the other(s) that the transmitter is in operation.

§ 80.880 Vessel radio equipment.

(a) Vessels operated solely within twenty nautical miles of shore must be equipped with a VHF radiotelephone installation as described in this subpart, and maintain a continuous watch on Channel 16.

(b) Vessels operated solely within one hundred nautical miles of shore must be equipped with a medium frequency transmitter capable of transmitting J3E emission and a receiver capable of reception of J3E emission within the band 1710 to 2850 kHz, in addition to the VHF radiotelephone installation required by paragraph (a) of this section, and must maintain a continuous watch on 2182 kHz. Additionally, such vessels must be equipped with either:

(1) A single sideband radiotelephone capable of operating on all distress and safety frequencies in the medium frequency and high frequency bands listed in § 80.369(a) and (b), on all the ship-to-shore calling frequencies in the high frequency bands listed in § 80.369(d), and on at least four of the automated mutual-assistance vessel rescue (AMVER) system HF duplex channels (this requirement may be met by the addition of such frequencies to the radiotelephone installation required by paragraph (b) of this section); or

(2) If operated in an area within the coverage of an INMARSAT maritime mobile geostationary satellite in which continuous alerting is available, an INMARSAT ship earth station meeting the equipment authorization rules of parts 2 and 80 of this chapter.

[68 FR 46973, Aug. 7, 2003]

§ 80.881 Equipment requirements for ship stations.

Vessels subject to subpart R of this part must be equipped as follows:

(a) A category 1, 406.0–406.1 MHz EPIRB meeting the requirements of § 80.1061;

(b) A NAVTEX receiver meeting the requirements of § 80.1101(c)(1);

(c) A Search and Rescue Transponder meeting the requirements of § 80.1101(c)(6); and

(d) A two-way VHF radiotelephone meeting the requirements of § 80.1101(c)(7).

[68 FR 46973, Aug. 7, 2003]

§ 80.882 2182 kHz watch.

Ships subject to this subpart must maintain a watch on the frequency 2182 kHz pursuant to § 80.305.

[73 FR 4487, Jan. 25, 2008]

Subpart S—Compulsory Radiotelephone Installations for Small Passenger Boats

§ 80.901 Applicability.

The provisions of Part III of Title III of the Communication Act require United States vessels which transport more than six passengers for hire while such vessels are being navigated on any tidewater within the jurisdiction of the United States adjacent or contiguous to the open sea, or in the open sea to carry a radiotelephone installation complying with this subpart. The provisions of Part III do not apply to vessels which are equipped with a radio installation for compliance with Part II of Title III of the Act, or for compliance with the Safety Convention, or to vessels navigating on the Great Lakes.

§ 80.903 Inspection of radiotelephone installation.

Every vessel subject to Part III of Title III of the Communications Act must have a detailed inspection of the radio installation by an FCC-licensed technician in accordance with § 80.59

once every five years. The FCC-licensed technician must use the latest FCC Information Bulletin, *How to Conduct an Inspection of a Small Passenger Vessel*. If the ship passes the inspection, the technician will issue a Communications Act Safety Radiotelephony Certificate. Communications Act Radiotelephony Certificates may be obtained from the Commission's National Call Center—(888) 225–5322—or from its forms contractor.

[63 FR 29660, June 1, 1998]

§ 80.905 Vessel radio equipment.

(a) Vessels subject to part III of title III of the Communications Act that operate in the waters described in § 80.901 must, at a minimum, be equipped as follows:

(1) Vessels operated solely within 20 nautical miles of land must be equipped with a VHF–DSC radiotelephone installation meeting the requirements of § 80.1101(c)(2), except that a VHF radiotelephone installation without DSC capability is permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A1 coverage is established. Vessels in this category must not operate more than 20 nautical miles from land.

(2) Vessels operated beyond the 20 nautical mile limitation specified in paragraph (a)(1) of this section, but not more than 100 nautical miles from the nearest land, must be equipped with a MF–DSC frequency transmitter meeting the requirements of § 80.1101(c)(3) and capable of transmitting J3E emission and a receiver capable of reception of J3E emission within the band 1710 to 2850 kHz, in addition to the VHF–DSC radiotelephone installation required by paragraph (a)(1) of this section, except that a MF radiotelephone installation without DSC capability is permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A2 coverage is established. The MF or MF–DSC transmitter and receiver must be capable of operation on 2670 kHz.

(3) Vessels operated more than 100 nautical miles but not more than 200 nautical miles from the nearest land must:

(i) Be equipped with a VHF–DSC radiotelephone installation meeting the requirements of paragraph (a)(1) of this section, except that a VHF radiotelephone installation without DSC capability is permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A1 coverage is established;

(ii) Be equipped with an MF–DSC radiotelephone transmitter and receiver meeting the requirements of paragraph (a)(2) of this section, except that a MF radiotelephone installation without DSC capability is permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A2 coverage is established; and

(iii) Be equipped with either:

(A) A DSC-capable single sideband radiotelephone meeting the requirements of § 80.1101(c)(4) and capable of operating on all distress and safety frequencies in the medium frequency and high frequency bands listed in § 80.369(a) and (b), on all of the ship-to-shore calling frequencies in the high frequency bands listed in § 80.369(d), and on at least four of the automated mutual-assistance vessel rescue (AMVER) system HF duplex channels (this requirement may be met by the addition of such frequencies to the radiotelephone installation required by paragraph (a)(2) of this section); or

(B) If operated in an area within the coverage of an INMARSAT maritime mobile geostationary satellite in which continuous alerting is available, a GMDSS-approved Inmarsat ship earth station.

(iv) Be equipped with a reserve power supply meeting the requirements of §§ 80.917(b), 80.919 and 80.921, and capable of powering the single sideband radiotelephone or the ship earth station (including associated peripheral equipment) required by paragraph (a)(3)(iii) of this section, including the navigation receiver referred to in § 80.905(a)(5);

(v) Be equipped with a NAVTEX receiver conforming to the following performance standards: IMO Resolution A.525(13), as revised by IMO Resolution MSC.148(77) and ITU–R M.540–2 (all incorporated by reference, *see* § 80.7);

(vi) Be equipped with a Category I 406–406.1 MHz satellite emergency position-indicating radiobeacon (EPIRB)

meeting the requirements of § 80.1061; and

(vii) Participate in the AMVER system while engaged on any voyage where the vessel is navigated in the open sea for more than 24 hours. Copies of the AMVER Bulletin are available at: AMVER Maritime Relations, USCG Battery Park Building, Room 201, New York, NY 10004–1499. Phone 212–668–7764; Fax 212–668–7684.

(4) Vessels operated more than 200 nautical miles from the nearest land must:

(i) Be equipped with two VHF–DSC radiotelephone installations meeting the requirements of paragraph (a)(1) of this section, except that VHF radiotelephone installations without DSC capability are permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A1 coverage is established;

(ii) Be equipped with an MF–DSC radiotelephone transmitter and receiver meeting the requirements of paragraph (a)(2) of this section, except that a MF radiotelephone installation without DSC capability is permitted until one year after the Coast Guard notifies the Commission that shore-based sea area A2 coverage is established;

(iii) Be equipped with either:

(A) A DSC-capable independent single sideband radiotelephone meeting the requirements of paragraph (a)(3)(iii)(A) of this section and that is capable of operating on all distress and safety frequencies in the medium frequency and high frequency bands listed in § 80.369(a) and (b), on all of the ship-to-shore calling frequencies in the high frequency bands listed in § 80.369(d), and on at least four of the automated mutual-assistance vessel rescue (AMVER) system HF duplex channels; or

(B) If operated in an area within the coverage of an INMARSAT maritime mobile geostationary satellite in which continuous alerting is available, an INMARSAT B, C, M, or Fleet F77 ship earth station, or an INMARSAT A ship earth station if installed prior to February 12, 2004.

(iv) Be equipped with a reserve power supply meeting the requirements of §§ 80.917(b), 80.919 and 80.921, and capable of powering the single sideband radiotelephone or the ship earth station (including associated peripheral equipment) required by paragraph (a)(4)(iii) of this section, including the navigation receiver referred to in § 80.905(a)(5);

(v) Be equipped with a NAVTEX receiver conforming to the following performance standards: IMO Resolution A.525(13), as revised by IMO Resolution MSC.148(77) and ITU–R M.540–2 (all incorporated by reference, *see* § 80.7);

(vi) Be equipped with a Category I 406–406.1 MHz satellite emergency position-indicating radiobeacon (EPIRB) meeting the requirements of § 80.1061;

(vii) Be equipped with an automatic radiotelephone alarm signal generator meeting the requirements of § 80.221; and

(viii) Participate in the AMVER system while engaged on any voyage where the vessel is navigated in the open sea for more than 24 hours. Copies of the AMVER Bulletin are available at: AMVER Maritime Relations, USCG Battery Park Building, Room 201, New York, NY 10004–1499. Phone 212–668–7764; Fax 212–668–7684.

(5) Vessels must comply with the requirements for a navigation receiver or manual updating of position information contained in § 80.1085(c).

(b) For a vessel that is navigated within the communication range of a VHF public coast station or U.S. Coast Guard station, but beyond the 20-nautical mile limitation specified in paragraph (a)(1) of this section, an exemption from the band 1605 to 2850 kHz installation requirements may be granted if the vessel is equipped with a VHF transmitter and receiver. An application for exemption must include a chart showing the route of the voyage or the area of operation of the vessel, and the receiving service area of the VHF public coast or U.S. Coast Guard station. The coverage area of the U.S. Coast Guard station must be based on written information from the District Commander, U.S. Coast Guard, a copy of which must be furnished with the application. The coverage area of a public coast station must be computed by the method specified in subpart P of this part.

(c) The radiotelephone installation must be installed to insure safe operation of the equipment and to facilitate repair. It must be protected

against the vibration, moisture, temperature, and excessive currents and voltages.

(d) A VHF-DSC radiotelephone installation or a remote unit must be located at each steering station except those auxiliary steering stations which are used only during brief periods for docking or for close-in maneuvering. A single portable VHF-DSC radiotelephone set meets the requirements of this paragraph if adequate permanent mounting arrangements with suitable power provision and antenna feed are installed at each operator steering station. Additionally, for vessels of more than 100 gross tons, the radiotelephone installation must be located at the level of the main wheelhouse or at least one deck above the vessel's main deck.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 19301, Apr. 26, 1991; 57 FR 34262, Aug. 4, 1992; 68 FR 46973, Aug. 7, 2003; 69 FR 64677, Nov. 8, 2004; 73 FR 4487, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011]

EDITORIAL NOTE: At 76 FR 67616, Nov. 2, 2011, in § 80.905, paragraph (a)(4)(vii) was revised, however, no text was published, therefor it could not be incorporated.

§ 80.907 Principal operating position.

The principal operating position of the radiotelephone installation on vessels over 100 gross tons must be in the room from which the vessel is normally steered while at sea. If the station can be operated from any location other than the principal operating position, a positive means must be provided at the principal operating position to take full control of the station.

§ 80.909 Radiotelephone transmitter.

(a) The medium frequency transmitter must have a peak envelope output power of at least 60 watts for J3E emission on 2182 kHz and at least one ship-to-shore working frequency within the band 1605 to 2850 kHz enabling communication with a public coast station if the region in which the vessel is navigated is served by a public coast station operating in this band.

(b) The single sideband radiotelephone must be capable of operating on maritime frequencies in the band 1710 to 27500 kHz with a peak envelope output power of at least 120 watts for J3E emission on 2182 kHz and J3E emission on the distress and safety frequencies listed in § 80.369(b).

(c) The transmitter complies with the power output requirements specified in paragraphs (a) or (b) of this section when:

(1) The transmitter can be adjusted for efficient use with an actual ship station transmitting antenna meeting the requirements of § 80.923 of this part; and

(2) The transmitter, with normal operating voltages applied, has been demonstrated to deliver its required output power on the frequencies specified in paragraphs (a) or (b) of this section into either an artificial antenna consisting of a series network of 10 ohms effective resistance and 200 picofarads capacitance or an artificial antenna of 50 ohms nominal impedance. An individual demonstration of power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required.

(d) The single sideband radiotelephone must be capable of transmitting clearly perceptible signals from ship to shore. The transmitter complies with this requirement if it is capable of enabling communication with a public coast station on working frequencies in the 4000 to 27500 kHz band specified in § 80.371(b) of this part under normal daytime operating conditions.

[56 FR 19302, Apr. 26, 1991, as amended at 57 FR 34262, Aug. 4, 1992; 68 FR 46974, Aug. 7, 2003]

§ 80.911 VHF transmitter.

(a) The transmitter must be capable of transmission of G3E emission on 156.800 MHz, 156.300 MHz, and on the ship-to-shore working frequencies necessary to communicate with public coast stations serving the area in which the vessel is navigated.

(b) The transmitter must be adjusted so that the transmission of speech normally produces peak modulation within the limits 75 percent and 100 percent.

(c) The transmitter must be certificated to transmit between 20 watts and 25 watts, on each of the frequencies 156.300 MHz, 156.800 MHz and on ship-to-shore public correspondence channels, into 50 ohms effective resistance when

operated with a primary supply voltage of 13.6 volts DC.

(d) When an individual demonstration of the capability of the transmitter is necessary the output power requirements prescribed in this paragraph must be met as follows:

(1) Measurements of primary supply voltage and transmitter output power must be made with the equipment drawing energy only from ship's battery;

(2) The primary supply voltage, measured at the power input terminals to the transmitter, and the output power of the transmitter, terminated in a matching artificial load, must be measured at the end of 10 minutes of continuous operation of the transmitter at its full power output.

(3) The primary supply voltage must not be less than 11.5 volts.

(4) The transmitter output power must be not less than 15 watts.

(5) For primary supply voltages, measured in accordance with the procedures of this paragraph, greater than 11.5 volts, but less than 12.6 volts, the required transmitter output power shall be equal to or greater than the value calculated from the formula

$$P=4.375(V)-35.313$$

where V equals the measured primary voltage and P is the calculated output power in watts.''

[51 FR 31213, Sept. 2, 1986, as amended at 54 FR 40059, Sept. 29, 1989; 63 FR 36607, July 7, 1998]

§ 80.913 Radiotelephone receivers.

(a) If a medium frequency radiotelephone installation is provided, the receiver must be capable of effective reception of J3E emissions, be connected to the antenna system specified by § 80.923, and be preset to, and capable of accurate and convenient selection of, the frequencies 2182 kHz, 2638 kHz, and the receiving frequency(s) of public coast stations serving the area in which the vessel is navigated.

(b) If a single sideband radiotelephone installation is provided, the receiver must be capable of reception of H3E and J3E emissions on 2182 kHz and J3E emission on any receiving frequency authorized pursuant to § 80.909 of this part.

(c) If a very high frequency radiotelephone installation is provided, the receiver used for maintaining the watch required by § 80.303 must be capable of effective reception of G3E emission, be connected to the antenna system specified by § 80.923 and be preset to, and capable of selection of, the frequencies 156.300 MHz, 156.800 MHz, and the receiving frequency(s) of public coast stations serving the area in which the vessel is navigated.

(d) One or more loudspeakers must be provided to permit reception on 2182 kHz or 156.800 MHz at the principal operating position and at any other place where listening is performed.

(e) Any receiver provided as a part of the radiotelephone installation must have a sensitivity of at least 50 microvolts in the case of MF equipment, and 1 microvolt in the case of HF or VHF equipment.

(f) The receiver required in paragraphs (a), (b) or (c) of this section must be capable of efficient operation when energized by the main source of energy. When a reserve source of energy is required pursuant to § 80.905 or § 80.917 of this part, the receiver must also be capable of efficient operation when energized by the reserve source of energy.

(g) The sensitivity of a receiver is the strength in microvolts of a signal, modulated 30 percent at 400 Hertz, required at the receiver input to produce an audio output of 50 milliwatts to the loudspeaker with a signal-to-noise ratio of at least 6 decibels. Evidence of a manufacturer's rating or a demonstration of the sensitivity of a required receiver computed on this basis must be furnished upon request of the Commission.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 19302, Apr. 26, 1991; 73 FR 4487, Jan. 25, 2008]

§ 80.915 Main power supply.

(a) There must be readily available for use under normal load conditions a main power supply sufficient to simultaneously energize the radiotelephone transmitter at its required antenna power, and the required receiver. Under this load condition the potential of the main power supply at the power input

terminals of the radiotelephone installation must not deviate from its rated potential by more than 10 percent on vessels completed on or after March 1, 1957, nor by more than 15 percent on vessels completed before that date.

(b) When the main power supply consists of batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of the vessel, and accessible with not less than 26 cm (10 in.) head room.

(c) Means must be provided for adequately charging any batteries used as a main power supply. There must be a device which gives a continuous indication of the rate and polarity of the charging current during charging.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44953, Aug. 25, 1993]

§ 80.917 Reserve power supply.

(a) Any small passenger vessel the keel of which was laid after March 1, 1957, must have a reserve power supply located on the same deck as the main wheel house or at least one deck above the vessel's main deck, unless the main power supply is so situated, if—

(1) The vessel is of more than 100 gross tons; or

(2) Beginning March 25, 2009:

(i) The vessel carries more than 150 passengers or has overnight accommodations for more than 49 persons; or

(ii) The vessel operates on the high seas or more than three miles from shore on Great Lakes voyages.

(b) The reserve power supply must be independent of the ship's propulsion and of any other electrical system, and be sufficient to simulataneously energize the radiotelephone transmitter at its required output power, and the receiver. The reserve power supply must be available for use at all times.

(c) When the reserve power supply consists of batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of the vessel, and accessible with not less than 26 cm (10 in.) head room.

(d) The reserve power supply must be located as near the required transmitter and receiver as practicable.

(e) All reserve power supply circuits must be protected from overloads.

(f) Means must be provided for charging any storage batteries used as a reserve power supply for the required radiotelephone installation. There must be a device which will give continuous indication of the rate and polarity of the charging current during charging.

(g) The cooling system of each internal combustion engine used as a part of the reserve power supply must be adequately treated to prevent freezing or overheating consistent with the season and route to be travelled by the particular vessel involved.

(h) Beginning January 2, 2013, any small passenger vessel that does not carry a reserve power supply must carry at least one VHF handheld radiotelephone.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44954, Aug. 25, 1993; 73 FR 4488, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011]

§ 80.919 Required capacity.

If either the main or reserve power supply includes batteries, these batteries must have sufficient reserve capacity to permit proper operation of the required transmitter and receiver for at least 3 hours under normal working conditions.

§ 80.921 Proof of capacity.

(a) When directed by a representative of the Commission the vessel must prove by demonstration as prescribed in paragraphs (b), (c), (d) and (e) of this section, that the requirements of § 80.919 are met.

(b) Proof of the ability of a storage battery used as a main or reserve power supply to operate over the 3-hour period established by a discharge test over the prescribed period of time, when supplying power at the voltage required for an electrical loss as prescribed by paragraph (d) of this section.

(c) When the required power supply consists of an engine-driven generator, proof of the adequacy of the engine fuel supply to operate the unit over the 3-hour period of time may be established by using as a basis the fuel consumption during a 1 hour period when supplying power, at the voltage required for operating an electrical load as prescribed by paragraph (d) of this section.

(d) In determining the required electrical load the following formula must be used:

(1) One-half of the current of the required transmitter at its rated output power; plus

(2) Current of the required receiver; plus

(3) Current of electric light, if required by § 80.925; plus

(4) The sum of the current of all other loads the reserve power supply may provide in time of emergency.

(e) At the conclusion of the test specified in paragraphs (b) and (c) of this section, no part of the main or reserve power supply must have an excessive temperature rise, nor must the specific gravity or voltage of any storage battery be below the 90 percent discharge point.

§ 80.923 Antenna system.

An antenna must be provided in accordance with the applicable requirements of § 80.81 of this part which is as efficient as practicable for the transmission and reception of radio waves. The construction and installation of this antenna must insure proper emergency operation.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 19302, Apr. 26, 1991]

§ 80.925 Electric light.

(a) If the vessel is navigated at night an electric light or dial lights which clearly illuminate the operating controls must be installed to provide illumination of the operating controls at the principal operating position.

(b) The electric light must be energized from the main power supply and, if a reserve power supply for the radiotelephone installation is required, from the reserve power supply.

§ 80.927 Antenna radio frequency indicator.

The transmitter must be equipped with a device which provides visual indication whenever the transmitter is supplying power to the antenna.

§ 80.929 Nameplate.

A durable nameplate must be mounted on the required radiotelephone equipment. When the transmitter and receiver comprise a single unit, one nameplate is sufficient. The nameplate must show the name of the manufacturer and the type or model number.

§ 80.931 Test of radiotelephone installation.

Unless normal use of the radiotelephone installation demonstrates that the equipment is in proper operating condition, a test communication on a required frequency in the 1605 to 27500 kHz band or the 156 to 162 MHz band must be made by a qualified operator each day the vessel is navigated. If the equipment is not in proper operating condition, the master must be promptly notified.

[51 FR 31213, Sept. 2, 1986, as amended at 56 FR 19302, Apr. 26, 1991]

§ 80.933 General small passenger vessel exemptions.

(a) Subject U.S. vessels less than 50 gross tons which are navigated not more than 300 meters (1,000 feet) from the nearest land at mean low tide are exempt from the provisions of title III, part III of the Communications Act.

(b) All U.S. passenger vessels of less than 100 gross tons, not subject to the radio provisions of the Safety Convention, are exempt from the radiotelegraph provisions of Part II of Title III of the Communications Act, provided that the vessels are equipped with a radiotelephone installation fully complying with subpart S of this part.

(c) These exemptions may be terminated at any time without hearing, if in the Commission's discretion, the need for such action arises.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44954, Aug. 25, 1993; 60 FR 58245, Nov. 27, 1995; 68 FR 46974, Aug. 7, 2003; 73 FR 4488, Jan. 25, 2008]

§ 80.935 Station clock.

Each station subject to this subpart must have a working clock or timepiece readily available to the operator.

Subpart T—Radiotelephone Installation Required for Vessels on the Great Lakes

§ 80.951 Applicability.

The Agreement Between the United States of America and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973, applies to vessels of all countries when navigated on the Great Lakes. The Great Lakes Radio Agreement defines the Great Lakes as ''all waters of Lakes Ontario, Erie, Huron (including Georgian Bay), Michigan, Superior, their connecting and tributary waters and the River St. Lawrence as far east as the lower exit of the St. Lambert Lock at Montreal in the Province of Quebec, Canada,'' but does not include such of the connecting and tributary waters as may be specified in the Technical Regulations. The Technical Regulations do not include any connecting and tributary waters except the St. Mary's River, the St. Clair River, Lake St. Clair, the Detroit River and the Welland Canal. A vessel to which the Great Lakes Radio Agreement applies and which falls into the specific categories by paragraph (a), (b) or (c) of this section and not excepted by paragraph (d) or (e) of this section must comply with this subpart while navigated on the Great Lakes.

(a) Every vessel 20 meters (65 feet) or over in length (measured from end to end over the deck, exclusive of sheer).

(b) Every vessel engaged in towing another vessel or floating object, except:

(1) Where the maximum length of the towing vessel, measured from end to end over the deck exclusive of sheer, is less than 8 meters (26 feet) and the length or breadth of the tow, exclusive of the towing line, is less than 20 meters (65 feet);

(2) Where the vessel towed complies with this subpart;

(3) Where the towing vessel and tow are located within a booming ground (an area in which logs are confined); or

(4) Where the tow has been undertaken in an emergency and neither the towing vessel nor the tow can comply with this part.

(c) Any vessel carrying more than six passengers for hire.

(d) The requirements of the Great Lakes Radio Agreement do not apply to:

(1) Ships of war and troop ships;

(2) Vessels owned and operated by any national government and not engaged in trade.

(e) The Commission may if it considers that the conditions of the voyage or voyages affecting safety (including but not necessarily limited to the regularity, frequency and nature of the voyages, or other circumstances) are such as to render full application of the Great Lakes Agreement unreasonable or unnecessary, exempt partially, conditionally or completely, any individual vessel for one or more voyages or for any period of time not exceeding one year.

§ 80.953 Inspection and certification.

(a) Each U.S. flag vessel subject to the Great Lakes Agreement must have an inspection of the required radiotelephone installation at least once every 13 months. This inspection must be made while the vessel is in active service or within not more than one month before the date on which it is placed in service.

(b) An inspection and certification of a ship subject to the Great Lakes Agreement must be made by a technician holding one of the following: a General Radiotelephone Operator License, a GMDSS Radio Maintainer's License, a Radiotelegraph Operator License, a Second Class Radiotelegraph Operator's Certificate, or a First Class Radiotelegraph Operator's Certificate. Additionally, the technician must not be the vessel's owner, operator, master, or an employee of any of them. The results of the inspection must be recorded in the ship's radiotelephone log and include:

(1) The date the inspection was conducted;

(2) The date by which the next inspection needs to be completed;

(3) The inspector's printed name, address, class of FCC license (including the serial number);

(4) The results of the inspection, including any repairs made; and

(5) The inspector's signed and dated certification that the vessel meets the requirements of the Great Lakes

Agreement and the Bridge-to-Bridge Act contained in subparts T and U of this part and has successfully passed the inspection.

(c) The vessel owner, operator, or ship's master must certify that the inspection required by paragraph (b) was satisfactory.

(d) The ship's log must be retained on-board the vessel for at least two years from the date of the inspection.

[61 FR 25807, May 23, 1996, as amended 78 FR 23157, Apr. 18, 2013]

§ 80.955 Radiotelephone installation.

(a) Each U.S. flag vessel of less than 38 meters (124 feet) in length while subject to the Great Lakes Agreement must have a radiotelephone meeting the provisions of this subpart in addition to the other rules in this part governing ship stations using telephony.

(b) Each U.S. flag vessel of 38 meters (124 feet) or more in length while subject to the Great Lakes Agreement must have a minimum of two VHF radiotelephone installations in operating condition meeting the provisions of this subpart. The second VHF installation must be electrically separate from the first VHF installation. However, both may be connected to the main power supply provided one installation can be operated from a separate power supply located as high as practicable on the vessel.

(c) This paragraph does not require or prohibit the use of other frequencies for use by the same ''radiotelephone installation'' for communication authorized by this part.

§ 80.956 Required frequencies and uses.

(a) Each VHF radiotelephone installation must be capable of transmitting and receiving G3E emission as follows:

(1) Channel 16—156.800 MHz-Distress, Safety and Calling; and

(2) Channel 6—156.300 MHz—Primary intership.

(b) The radiotelephone station must have additional frequencies as follows:

(1) Those ship movement frequencies appropriate to the vessel's area of operation: Channel 11—156.550 MHz, Channel 12—156.600 MHz, or Channel 14—156.700 MHz.

(2) The navigational bridge-to-bridge frequency, 156.650 MHz (channel 13).

(3) Such other frequencies as required for the vessel's service.

(4) One channel for receiving marine navigational warnings for the area of operation.

(c) Every radiotelephone station must include one or more transmitters, one or more receivers, one or more sources of energy and associated antennas and control equipment. The radiotelephone station, exclusive of the antennas and source of energy, must be located as high as practicable on the vessel, preferably on the bridge, and protected from water, temperature, and electrical and mechanical noise.

[51 FR 31213, Sept. 2, 1986, as amended at 53 FR 17052, May 13, 1988]

§ 80.957 Principal operating position.

(a) The principal operating position of the radiotelephone installation must be on the bridge, convenient to the conning position.

(b) When the radiotelephone station is not located on the bridge, operational control of the equipment must be provided at the location of the radiotelephone station and at the bridge operating position. Complete control of the equipment at the bridge operating position must be provided.

§ 80.959 Radiotelephone transmitter.

(a) The transmitter must be capable of transmission of G3E emission on the required frequencies.

(b) The transmitter must deliver a carrier power of between 10 watts and 25 watts into 50 ohms nominal resistance when operated with its rated supply voltage. The transmitter must be capable of readily reducing the carrier power to one watt or less.

(c) To demonstrate the capability of the transmitter, measurements of primary supply voltage and transmitter output power must be made with the equipment operating on the vessel's main power supply, as follows:

(1) The primary supply voltage measured at the power input terminals to the transmitter terminated in a matching artificial load, must be measured at the end of 10 minutes of continuous operation of the transmitter at its rated power output.

(2) The primary supply voltage, measured in accordance with the procedures of this paragraph, must be not less than 11.5 volts.

(3) The transmitter at full output power measured in accordance with the procedure of this paragraph must not be less than 10 watts.

§ 80.961 Radiotelephone receiver.

(a) The receiver must be capable of reception of G3E emission on the required frequencies.

(b) The receiver must have a sensitivity of at least 2 microvolts across 50 ohms for a 20 decibel signal-to-noise ratio.

§ 80.963 Main power supply.

(a) A main power supply must be available at all times while the vessel is subject to the requirements of the Great Lakes Radio Agreement.

(b) Means must be provided for charging any batteries used as a source of energy. A device which during charging of the batteries gives a continuous indication of charging current must be provided.

§ 80.965 Reserve power supply.

(a) Each passenger vessel of more than 100 gross tons and each cargo vessel of more than 300 gross tons must be provided with a reserve power supply independent of the vessel's normal electrical system and capable of energizing the radiotelephone installation and illuminating the operating controls at the principal operating position for at least 2 continuous hours under normal operating conditions. When meeting this 2 hour requirement, such reserve power supply must be located on the bridge level or at least one deck above the vessel's main deck.

(b) Instead of the independent power supply specified in paragraph (a) of this section, the vessel may be provided with an auxiliary radiotelephone installation having a power source independent of the vessel's normal electrical system. Any such installation must comply with §§ 80.955, 80.956, 80.957, 80.959, 80.961, 80.969 and 80.971, as well as the general technical standards contained in this part. Additionally, the power supply for any such auxiliary radiotelephone must be a ''reserve power supply'' for the purposes of paragraphs (c), (d) and (e) of this section.

(c) Means must be provided for adequately charging any batteries used as a reserve power supply for the required radiotelephone installation. A device must be provided which, during charging of the batteries, gives a continuous indication of charging.

(d) The reserve power supply must be available within one minute.

(e) The station licensee, when directed by the Commission, must prove by demonstration as prescribed in paragraphs (e)(1), (2), (3) and (4) of this section that the reserve power supply is capable of meeting the requirements of paragraph (a) of this section as follows:

(1) When the reserve power supply includes a battery, proof of the ability of the battery to operate continuously for the required time must be established by a discharge test over the required time, when supplying power at the voltage required for normal operation to an electric load as prescribed by paragraph (e)(3) of this section.

(2) When the reserve power supply includes an engine driven generator, proof of the adequacy of the engine fuel supply to operate the unit continuously for the required time may be established by using as a basis the fuel consumption during a continuous period of one hour when supplying power, at the voltage required for normal operation, to an electrical load as prescribed by paragraph (e)(3) of this section.

(3) For the purposes of determining the electrical load to be supplied, the following formula must be used:

(i) One-half of the current of the radiotelephone while transmitting at its rated output, plus one-half the current while not transmitting; plus

(ii) Current of the required receiver; plus

(iii) Current of the source of illumination provided for the operating controls prescribed by § 80.969; plus

(iv) The sum of the currents of all other loads to which the reserve power supply may provide power in time of emergency or distress.

(4) At the conclusion of the test specified in paragraphs (e) (1) and (2) of this section, no part of the reserve power

supply must have excessive temperature rise, nor must the specific gravity or voltage of any battery be below the 90 percent discharge point.

§ 80.967 Antenna system.

The antenna must be omnidirectional, vertically polarized and located as high as practicable on the masts or superstructure of the vessel.

§ 80.969 Illumination of operating controls.

(a) The radiotelephone must have dial lights which illuminate the operating controls at the principal operating position.

(b) Instead of dial lights, a light from an electric lamp may be provided to illuminate the operating controls of the radiotelephone at the principal operating position. If a reserve power supply is required, arrangements must permit the use of that power supply for illumination within one minute.

§ 80.971 Test of radiotelephone installation.

At least once during each calendar day a vessel subject to the Great Lakes Radio Agreement must test communications on 156.800 MHz to demonstrate that the radiotelephone installation is in proper operating condition unless the normal daily use of the equipment demonstrates that this installation is in proper operating condition. If equipment is not in operating condition, the master must have it restored to effective operation as soon as possible.

Subpart U—Radiotelephone Installations Required by the Bridge-to-Bridge Act

§ 80.1001 Applicability.

The Bridge-to-Bridge Act and the regulations of this part apply to the following vessels in the navigable waters of the United States:

(a) Every power-driven vessel of 20 meters or over in length while navigating;

(b) Every vessel of 100 gross tons and upward carrying one or more passengers for hire while navigating;

(c) Every towing vessel of 7.8 meters (26 feet) or over in length, measured from end to end over the deck excluding sheer, while navigating; and

(d) Every dredge and floating plant engaged, in or near a channel or fairway, in operations likely to restrict or affect navigation of other vessels. An unmanned or intermittently manned floating plant under the control of a dredge shall not be required to have a separate radiotelephone capability.

[51 FR 31213, Sept. 2, 1986, as amended at 57 FR 61012, Dec. 23, 1992; 58 FR 44954, Aug. 25, 1993]

§ 80.1003 Station required.

Vessels subject to the Bridge-to-Bridge Act must have a radiotelephone installation to enable the vessel to participate in navigational communications. This radiotelephone installation must be continuously associated with the ship even though a portable installation is used. Foreign vessels coming into U.S. waters where a bridge-to-bridge station is required may fulfill this requirement by use of portable equipment brought a board by the pilot. Non portable equipment, when used, must be arranged to facilitate repair. The equipment must be protected against vibration, moisture, temperature and excessive currents and voltages.

§ 80.1005 Inspection of station.

The bridge-to-bridge radiotelephone station will be inspected on vessels subject to regular inspections pursuant to the requirements of Parts II and III of Title II of the Communications Act, the Safety Convention or the Great Lakes Agreement at the time of the regular inspection. If after such inspection, the Commission determines that the Bridge-to-Bridge Act, the rules of the Commission and the station license are met, an endorsement will be made on the appropriate document. The validity of the endorsement will run concurrently with the period of the regular inspection. Each vessel must carry a certificate with a valid endorsement while subject to the Bridge-to-Bridge Act. All other bridge-to-bridge stations will be inspected from time to time. An inspection of the bridge-to-bridge station on a Great Lakes Agreement vessel must normally be made at the same

time as the Great Lakes Agreement inspection is conducted by a technician holding one of the following: a General Radiotelephone Operator License, a GMDSS Radio Maintainer's License, a Radiotelegraph Operator License, a Second Class Radiotelegraph Operator's Certificate, or a First Class Radiotelegraph Operator's Certificate. Additionally, the technician must not be the owner, operator, master, or an employee of any of them. Ships subject to the Bridge-to-Bridge Act may, in lieu of an endorsed certificate, certify compliance in the station log required by § 80.409(f).

[78 FR 23157, Apr. 18, 2013]

§ 80.1007 Bridge-to-bridge radiotelephone installation.

Use of the bridge-to-bridge transmitter must be restricted to the master or person in charge of the vessel, or the person designated by the master or person in charge to pilot or direct the movement of the vessel. Communications must be of a navigational nature exclusively.

§ 80.1009 Principal operator and operating position.

The principal operating position of the bridge-to-bridge station must be the vessel's navigational bridge or, in the case of dredges, its main control station. If the radiotelephone installation can be operated from any location other than the principal operating position, the principal operating position must be able to take full control of the installation.

§ 80.1011 Transmitter.

(a) The bridge-to-bridge transmitter must be capable of transmission of G3E emission on the navigational frequency 156.650 MHz (Channel 13) and the Coast Guard liaison frequency 157.100 MHz (Channel 22A). Additionally, the bridge-to-bridge transmitter must be capable of transmission of G3E emission on the navigational frequency of 156.375 MHz (Channel 67) while transiting any of the following waters:

(1) The lower Mississippi River from the territorial sea boundary, and within either the Southwest Pass safety fairway or the South Pass safety fairway specified in § 166.200 of the U.S. Coast Guard's Rules, 33 CFR 166.200, to mile 242.4 AHP (Above Head of Passes) near Baton Rouge;

(2) The Mississippi River-Gulf Outlet from the territorial sea boundary, and within the Mississippi River-Gulf outlet Safety Fairway specified in § 166.200 of the U.S. Coast Guard's Rules, 33 CFR 166.200, to that channel's junction with the Inner Harbor Navigation Canal; and

(3) The full length of the Inner Harbor Navigation Canal from its junction with the Mississippi River to that canal's entry to Lake Pontchartrain at the New Seabrook vehicular bridge.

(b) [Reserved]

[57 FR 61012, Dec. 23, 1992]

§ 80.1013 Receiver.

The bridge-to-bridge receiver must be capable of reception of G3E emission on the navigational frequency 156.650 MHz (Channel 13) and the Coast Guard liaison frequency 157.100 MHz (Channel 22A). In addition, the bridge-to-bridge receiver must be capable of reception of G3E emission on the navigational frequency of 156.375 MHz (Channel 67) while transiting in the waters of the lower Mississippi River as described in §§ 80.1011 (a)(1), (a)(2) and (a)(3) of this part.

[57 FR 61012, Dec. 23, 1992]

§ 80.1015 Power supply.

(a) There must be readily available for use under normal load conditions, a power supply sufficient to simultaneously energize the bridge-to-bridge transmitter at its required antenna power, and the bridge-to-bridge receiver. Under this load condition the voltage of the power supply at the power input terminals of the bridge-to-bridge radiotelephone installation must not deviate from its rated voltage by more than 10 percent on vessels completed on or after March 1, 1957, nor by more than 15 percent on vessels completed before that date.

(b) When the power supply for a nonportable bridge-to-bridge radiotelephone installation consists of or includes batteries, they must be installed as high above the bilge as practicable, secured against shifting with motion of

the vessel, and accessible with not less than 26 cm (10 in.) head room.

(c) Means must be provided for adequately charging any rechargeable batteries used in the vessel's bridge-to-bridge radiotelephone installation. There must be provided a device which will give a continuous indication of the charging current during charging.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44954, Aug. 25, 1993]

§ 80.1017 Antenna system.

(a) An antenna must be provided for nonportable bridge-to-bridge radiotelephone installations which is nondirectional and vertically polarized. The construction and installation of this antenna must insure proper operation in time of an emergency.

(b) In cases where portable bridge-to-bridge equipment is permanently associated with a vessel, the equipment must be provided with a connector for an external antenna of a type capable of meeting requirements of paragraph (a) of this section and § 80.71. The vessel must be equipped with an external antenna meeting requirements of paragraph (a) of this section and § 80.71, capable of use with the portable equipment during a normal listening watch.

§ 80.1019 Antenna radio frequency indicator.

Each nonportable bridge-to-bridge transmitter must be equipped, at each point of control, with a carrier operated device which will provide continuous visual indication when the transmitter is supplying power to the antenna transmission line or, in lieu thereof, a pilot lamp or meter which will provide continuous visual indication when the transmitter control circuits have been placed in a condition to activate the transmitter.

[52 FR 35246, Sept. 18, 1987]

§ 80.1021 Nameplate.

A durable nameplate must be mounted on the required radiotelephone or be an integral part of it. When the transmitter and receiver comprise a single unit, one nameplate is sufficient. The nameplate must show at least the name of the manufacturer and the type or model number.

§ 80.1023 Test of radiotelephone installation.

Unless normal use of the required radiotelephone installation demonstrates that the equipment is in proper operating condition, a test communication for this purpose must be made by a qualified operator each day the vessel is navigated. If the equipment is not in proper operating condition, the master must be promptly notified. The master must have it restored to effective operating condition as soon as possible.

Subpart V—Emergency Position Indicating Radiobeacons (EPIRB's)

§ 80.1051 Scope.

This subpart describes the technical and performance requirements for EPIRB stations.

[73 FR 4488, Jan. 25, 2008]

§ 80.1053 Prohibition on certification, manufacture, importation, sale or use of Class A, Class B, Class S, and INMARSAT–E EPIRBs.

The manufacture, importation, or sale in the United States of Class A, Class B, Class S, or INMARSAT–E EPIRBs is prohibited. New Class A, Class B, Class S, or INMARSAT–E EPIRBs will no longer be certified by the Commission.

[76 FR 67616, Nov. 2, 2011]

§§ 80.1055–80.1059 [Reserved]

§ 80.1061 Special requirements for 406.0–406.1 MHz EPIRB stations.

(a) Notwithstanding the provisions in paragraph (b) of this section, 406.0–406.1 MHz EPIRBs must meet all the technical and performance standards contained in the Radio Technical Commission for Maritime Services document entitled RTCM 11000.2 (incorporated by reference, *see* § 80.7), and must also comply with the standards specified in § 80.1101(c)(5).

(b) The 406.0–406.1 EPIRB must contain as an integral part a ''homing'' beacon operating only on 121.500 MHz that meets all the requirements described in the RTCM Recommended Standards document described in paragraph (a) of this section. The 121.500 MHz ''homing'' beacon must have a

continuous duty cycle that may be interrupted during the transmission of the 406.0–406.1 MHz signal only. Additionally, at least 30 percent of the total power emitted during any transmission cycle must be contained within plus or minus 30 Hz of the carrier frequency.

(c) Prior to submitting a certification application for a 406.0–406.1 MHz radiobeacon, the radiobeacon must be certified by a test facility recognized by one of the COSPAS–SARSAT Partners that the equipment satisfies the design characteristics associated with the measurement methods described in COSPAS–SARSAT Standard C/S T.001 (incorporated by reference, see § 80.7), and COSPAS–SARSAT Standard C/S T.007 (incorporated by reference, *see* § 80.7). Additionally, the radiobeacon must be subjected to the environmental and operational tests associated with the test procedures described in Appendix A of RTCM Standard 11000.2 (incorporated by reference, see § 80.7), by a test facility accepted by the U.S. Coast Guard for this purpose. Information regarding accepted test facilities may be obtained from Commandant (CG–5214), U.S. Coast Guard, 2100 2nd St SW., Mail Stop 7126, Washington, DC 20593–7126, *http://cgmix.uscg.mil/EQLabs/EQLabsSearch.aspx*.

(1) After a 406.0–406.1 MHz EPIRB has been certified by the recognized test facilities the following information must be submitted in duplicate to the Commandant (G-MSE), U.S. Coast Guard, 2100 2nd Street SW, Washington, DC 20593–0001:

(i) The name of the manufacturer or grantee and model number of the EPIRB;

(ii) Copies of the certificate and test data obtained from the test facility recognized by a COSPAS/SARSAT Partner showing that the radiobeacon complies with the COSPAS/SARSAT design characteristics associated with the measurement methods described in the COSPAS–SARSAT Standard C/S T.001 and COSPAS–SARSAT Standard C/S T.007, and RTCM 11000.2 (all incorporated by reference, *see* § 80.7);

(iii) Copies of the test report and test data obtained from the test facility recognized by the U.S. Coast Guard showing that the radiobeacon complies with the U.S. Coast Guard environmental and operational characteristics associated with the measurement methods described in Appendix A of the RTCM Recommended Standards; and

(iv) Instruction manuals associated with the radiobeacon, description of the test characteristics of the radiobeacon including assembly drawings, electrical schematics, description of parts list, specifications of materials and the manufacturer's quality assurance program.

(2) After reviewing the information described in paragraph (c)(1) of this section the U.S. Coast Guard will issue a letter stating whether the radiobeacon satisfies all RTCM Recommended Standards.

(d) A certification application for a 406.0–406.1 MHz EPIRB submitted to the Commission must also contain a copy of the U.S. Coast Guard letter that states the radiobeacon satisfies all RTCM Recommended Standards, a copy of the technical test data, and the instruction manual(s).

(e) An identification code, issued by the National Oceanic and Atmospheric Administration (NOAA), the United States Program Manager for the 406.0–406.1 MHz COSPAS/SARSAT satellite system, must be programmed in each EPIRB unit to establish a unique identification for each EPIRB station. With each marketable EPIRB unit, the manufacturer or grantee must include a postage pre-paid registration card printed with the EPIRB identification code addressed to: NOAA/SARSAT Beacon Registration, E/SP3, Federal Building 4, Room 3320, 5200 Auth Road, Suitland, MD 20746–4304. The registration card must request the owner's name, address, telephone number, type of ship, alternate emergency contact and other information as required by NOAA. The registration card must also contain information regarding the availability to register the EPIRB at NOAA's online web-based registration database at: *http://www/beaconregistration.noaa.gov*. In addition, the following statement must be included: ''WARNING—failure to register this EPIRB with NOAA before installation could result in a monetary forfeiture being issued to the owner.''

(f) To enhance protection of life and property it is mandatory that each 406.0–406.1 MHz EPIRB be registered with NOAA before installation and that information be kept up-to-date. Therefore, in addition to the identification plate or label requirements contained in §§ 2.925 and 2.926 of this chapter, each 406.0–406.1 MHz EPIRB must be provided on the outside with a clearly discernible permanent plate or label containing the following statement: ''The owner of this 406.0–406.1 MHz EPIRB must register the NOAA identification code contained on this label with the National Oceanic and Atmospheric Administration (NOAA) whose address is: NOAA, NOAA/SARSAT Beacon Registration, E/SP3, Federal Building 4, Room 3320, 5200 Auth Road, Suitland, MD 20746–4304.'' Vessel owners shall advise NOAA in writing upon change of vessel or EPIRB ownership, transfer of EPIRB to another vessel, or any other change in registration information. NOAA will provide registrants with proof of registration and change of registration postcards.

(g) For 406.0–406.1 MHz EPIRBs whose identification code can be changed after manufacture, the identification code shown on the plate or label must be easily replaceable using commonly available tools.

[68 FR 46974, Aug. 7, 2003, as amended at 69 FR 64678, Nov. 8, 2004; 73 FR 4488, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011]

Subpart W—Global Maritime Distress and Safety System (GMDSS)

General Provisions

This subpart contains the rules applicable to the Global Maritime Distress and Safety System (GMDSS). Every ship of the United States subject to part II of title III of the Communications Act or the Safety Convention must comply with the provisions of this subpart. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to the GMDSS. For the purposes of this subpart, distress and safety communications include distress, urgency, and safety calls and messages.

SOURCE: 57 FR 9065, Mar. 16, 1992, unless otherwise noted.

NOTE: No provision of this subpart is intended to eliminate, or in anyway modify, other requirements contained in this part with respect to part II of title III of the Communications Act.

§ 80.1065 Applicability.

(a) The regulations contained within this subpart apply to all passenger ships regardless of size and cargo ships of 300 tons gross tonnage and upwards.

(b) The requirements of this subpart do not modify the requirements for ships navigated on the Great Lakes or small passenger boats. The requirements contained in the Agreement Between the United States of America and Canada for Promotion of Safety on the Great Lakes by Means of Radio, 1973, continue to apply (see subpart T of this part). The requirements contained in part III of title III of the Communications Act continue to apply (see subpart S of this part).

(c) No provision in this subpart is intended to prevent the use by any ship, survival craft, or person in distress, of any means at their disposal to attract attention, make known their position and obtain help.

[57 FR 9065, Mar. 16, 1992, as amended at 60 FR 58245, Nov. 27, 1995; 60 FR 62927, Dec. 7, 1995; 73 FR 4489, Jan. 25, 2008]

§ 80.1067 Inspection of station.

(a) Ships must have the required equipment inspected at least once every 12 months by an FCC-licensed technician holding a GMDSS Radio Maintainer's License. If the ship passes the inspection the technician will issue a Safety Certificate. Safety Certificates may be obtained from the Commission's National Call Center at 1–888–CALL FCC (1–888–225–5322) or from its field offices. The effective date of the ship Safety Certificate is the date the station is found to be in compliance or not later than one business day later. The FCC-licensed technician must use the latest FCC Information Bulletin, *How to Conduct a GMDSS Inspection*. Contact the FCC's National Call Center at 1–888–CALL FCC (1–888–225–5322) to request a copy.

(b) Certificates issued in accordance with the Safety Convention must be

posted in a prominent and accessible place on the ship.

[57 FR 9065, Mar. 16, 1992, as amended at 63 FR 29660, June 1, 1998]

§ 80.1069 Maritime sea areas.

(a) For the purpose of this subpart, a ship's area of operation is defined as follows:

(1) *Sea area A1*. An area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available as defined by the International Maritime Organization.

(2) *Sea area A2*. An area, excluding sea area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available as defined by the International Maritime Organization.

(3) *Sea area A3*. An area, excluding sea areas A1 and A2, within the coverage of an INMARSAT geostationary satellite in which continuous alerting is available.

(4) *Sea area A4*. An area outside sea areas A1, A2 and A3.

(b) Maritime sea areas are delineated in the International Maritime Organization Publication GMDSS Master Plan of Shore-Based Facilities. The Master Plan can be purchased from the International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom.

§ 80.1071 Exemptions.

(a) In certain circumstances, partial or conditional exemptions may be granted to individual ships from the requirements of §§ 80.1085, 80.1087, 80.1089, 80.1091, and 80.1093 provided: such ships comply with the functional requirements of § 80.1081 and a showing is made that such an exemption will not have a material effect upon the general efficiency of the service for the safety of all ships.

(b) An exemption may be granted under paragraph (a) of this section only:

(1) If the conditions affecting safety are such as to render the full application of §§ 80.1085, 80.1087, 80.1089, 80.1091, and 80.1093 unreasonable or unnecessary or otherwise not in the public interest;

(2) In exceptional circumstances, for a single voyage outside the sea area or sea areas for which the ship is equipped.

(c) All fishing vessels of 300 gross tons and upward are exempt from subpart W requirements applicable for carriage of VHF-DSC and MF-DSC equipment until one year after the USCG establishes GMDSS coast facilities for Sea Areas A1 and A2, if the following provisions are met:

(1) The ship is equipped with:

(i) A VHF radiotelephone installation.

(ii) A MF or HF radiotelephone installation.

(iii) A Category 1, 406.0–406.1 MHz EPIRB meeting the requirements of § 80.1061;

(iv) A NAVTEX receiver meeting the requirements of § 80.1101(c)(1);

(v) Survival craft equipment meeting the requirements of § 80.1095;

(vi) A Search and Rescue Transponder meeting the requirements of § 80.1101(c)(6); and

(2) The ship remains within coverage of a VHF coast station and maintains a continuous watch on VHF Channel 16; or

(3) The vessel remains within coverage of an MF coast station and maintains a continuous watch on 2182 kHz and VHF Channel 16.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46975, Aug. 7, 2003; 73 FR 4489, Jan. 25, 2008]

§ 80.1073 Radio operator requirements for ship stations.

(a) Ships must carry at least two persons holding GMDSS Radio Operator's Licenses as specified in § 13.7 of this chapter for distress and safety radiocommunications purposes. The GMDSS Radio Operator's License qualifies personnel as a GMDSS radio operator for the purposes of operating a GMDSS radio installation, including basic equipment adjustments as denoted in the knowledge requirements specified in § 13.203 of this chapter.

(1) A qualified GMDSS radio operator must be designated to have primary responsibility for radiocommunications during distress incidents, except if the vessel operates exclusively within twenty nautical miles of shore, in

which case a qualified restricted radio operator may be so designated.

(2) A second qualified GMDSS radio operator must be designated as backup for distress and safety radiocommunications, except if the vessel operates exclusively within twenty nautical miles of shore, in which case a qualified restricted GMDSS radio operator may be so designated.

(b) A qualified GMDSS radio operator, and a qualified backup, as specified in paragraph (a) of this section must be:

(1) Available to act as the dedicated radio operator in cases of distress as described in § 80.1109(a);

(2) Designated to perform as part of normal routine each of the applicable communications described in § 80.1109(b);

(3) Responsible for selecting HF DSC guard channels and receiving scheduled maritime safety information broadcasts;

(4) Designated to perform communications described in § 80.1109(c);

(5) Responsible for ensuring that the watches required by § 80.1123 are properly maintained; and

(6) Responsible for ensuring that the ship's navigation position is entered into all installed DSC equipment, either automatically through a connected or integral navigation receiver, or manually at least every four hours when the ship is underway.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46975, Aug. 7, 2003; 73 FR 4489, Jan. 25, 2008]

§ 80.1074 Radio maintenance personnel for at-sea maintenance.

(a) Ships that elect the at-sea option for maintenance of GMDSS equipment (see § 80.1105) must carry at least one person who qualifies as a GMDSS radio maintainer, as specified in paragraph (b) of this section, for the maintenance and repair of equipment specified in this subpart. This person may be, but need not be, the person designated as GMDSS radio operator as specified in § 80.1073.

(b) The following licenses qualify personnel as GMDSS radio maintainers to perform at-sea maintenance of equipment specified in this subpart. For the purposes of this subpart, no order is intended by this listing or the alphanumeric designator.

(1) DM: GMDSS Maintainer's License;

(2) DB: GMDSS Operator's/Maintainer's License.

(c) While at sea, all adjustments of radio installations, servicing, or maintenance of such installations that may affect the proper operation of the GMDSS station must be performed by, or under the immediate supervision and responsibility of, a qualified GMDSS radio maintainer as specified in paragraph (b) of this section.

(d) The GMDSS radio maintainer must possess the knowledge covering the requirements set forth in IMO Assembly on Training for Radio Personnel (GMDSS), Annex 5 and IMO Assembly on Radio Maintenance Guidelines for the Global Maritime Distress and Safety System related to Sea Areas A3 and A4.

[57 FR 9065, Mar. 16, 1992, as amended at 63 FR 49872, Sept. 18, 1998; 68 FR 46976, Aug. 7, 2003; 76 FR 67616, Nov. 2, 2011]

§ 80.1075 Radio records.

A record must be kept, as required by the Radio Regulations and § 80.409 (a), (b) and (e), of all incidents connected with the radiocommunication service which appear to be of importance to safety of life at sea.

§ 80.1077 Frequencies.

The following table describes the frequencies used in the Global Maritime Distress and Safety System:

Alerting:

406.0–406.1 EPIRBs	406.0–406.1 MHz (Earth-to-space). 1544–1545 MHz (space-to-Earth).

INMARSAT Ship Earth Stations capable of voice and/or direct printing.	1626.5–1645.5 MHz (Earth-to-space).
VHF DSC Ch. 70	156.525 MHz.[1]
MF/HF DSC[2]	2187.5 kHz[3], 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz, and 16804.5 kHz.
On-scene communications:	
VHF Ch.16	156.8 MHz.
MF Radiotelephony	2182 kHz.
NBDP	2174.5 kHz.
Communications involving aircraft:	
On-scene, including search and rescue.	156.8 MHz[4], 121.5 MHz[5], 123.1 MHz, 156.3 MHz, 2182 kHz, 3023 kHz, 4125 kHz, and 5680 kHz.[6]
Locating signals:	
406–406.1 EPIRB Beacons	121.5 MHz.
9 GHz radar transponders	9200–9500 MHz.
Maritime safety information (MSI):	
International NAVTEX	518 kHz.[7]
Warnings	490 kHz, 4209.5 kHz.
NBDP	4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5 kHz, 22376 kHz, 26100.5 kHz.
Satellite	1530–1545 MHz.[10]
General distress and safety communications and calling:	
Satellite	1530–1544 MHz (space-to-Earth) and 1626.5–1645.5 MHz (Earth-to-space).[10]
Radiotelephony	2182 kHz, 4125 kHz, 6215 kHz, 8291 kHz, 12290 kHz, 16420 kHz, and 156.8 MHz.
NBDP	2174.5 kHz, 4177.5 kHz, 6268 kHz, 8376.5 kHz, 12520 kHz, and 16695 kHz.
DSC	2187.5 kHz, 4207.5 kHz, 6312 kHz, 8414.5 kHz, 12577 kHz, 16804.5 kHz, and 156.525 MHz.
Survival craft:	
VHF radiotelephony	156.8 MHz and one other 156–174 MHz frequency
9 GHz radar transponders	9200–9500 MHz.

[1] Frequency 156.525 MHz can be used for ship-to-ship alerting and, if within sea area A1, for ship-to-shore alerting.
[2] For ships equipped with MF/HF equipment, there is a watch requirement on 2187.5 kHz, 8414.5 kHz, and one other frequency.
[3] Frequency 2187.5 kHz can be used for ship-to-ship alerting and, if within sea area A2, for ship-to-shore alerting.
[4] Frequency 156.8 MHz may also be used by aircraft for safety purposes only.
[5] Frequency 121.5 MHz may be used by ships for aeronautical distress and urgency purposes.
[6] The priority of use for ship-aircraft communications is 4125 kHz, then 3023 kHz. Additionally, frequencies 123.1 MHz, 3023 kHz and 5680 kHz can be used by land stations engaged in coordinated search and rescue operations.
[7] The international NAVTEX frequency 518 kHz is the primary frequency for receiving maritime safety information. The other frequencies are used only to augment the coverage or information provided on 518 kHz.
[8] [Reserved]
[9] [Reserved]
[10] In addition to EPIRBs, 1544–1545 MHz can be used for narrowband distress and safety operations and 1645.5–1646.5 MHz can be used for relay of distress alerts between satellites. Feeder links for satellite communications are assigned from the fixed satellite service, see 47 CFR § 2.106.
[11] [Reserved]

[69 FR 64678, Nov. 8, 2004, as amended at 73 FR 4489, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011]

EQUIPMENT REQUIREMENTS FOR SHIP STATIONS

§ 80.1081 Functional requirements.

Ships, while at sea, must be capable:

(a) Except as provided in §§ 80.1087(a)(1) and 80.1091(a)(4)(iii), of transmitting ship-to-shore distress alerts by at least two separate and independent means, each using a different radiocommunication service;

(b) Of receiving shore-to-ship distress alerts;

(c) Of transmitting and receiving ship-to-ship distress alerts;

(d) Of transmitting and receiving search and rescue co-ordinating communications;

(e) Of transmitting and receiving on-scene communications;

(f) Of transmitting and receiving signals for locating;

(g) Of transmitting and receiving maritime safety information;

(h) Of transmitting and receiving general radiocommunications to and from shore-based radio sytsems or networks; and

(i) Of transmitting and receiving bridge-to-bridge communications.

§ 80.1083 Ship radio installations.

(a) Ships must be provided with radio installations capable of complying with the functional requirements prescribed by § 80.1081 throughout its intended voyage and, unless exempted under § 80.1071, complying with the requirements of § 80.1085 and, as appropriate for the sea area of areas through which it will pass during its intended voyage, the requirements of either § 80.1087, § 80.1089, § 80.1091, or § 80.1093.

(b) The radio installation must:

(1) Be so located that no harmful interference of mechanical, electrical or other origin affects its proper use, and so as to ensure electromagnetic compatibility and avoidance of harmful interaction with other equipment and systems;

(2) Be so located as to ensure the greatest possible degree of safety and operational availability;

(3) Be protected against harmful effects of water, extremes of temperature and other adverse environmental conditions;

(4) Be provided with reliable, permanently arranged electrical lighting, independent of the main and emergency sources of electrical power, for the adequate illumination of the radio controls for operating the radio installation; and

(5) Be clearly marked with the call sign, the ship station identity and other codes as applicable for the use of the radio installation.

(c) Control of the VHF radiotelephone channels required for navigational safety must be immediately available on the navigating bridge convenient to the conning position and, where necessary, facilities should be available to permit radiocommunications from the wings of the navigating bridge. Portable VHF equipment may be used to meet the latter provision.

(d) Shipborne Integrated Radiocommunication System (IRCS) may be utilized to integrate all GMDSS equipment into a standard operator's console. Such installation must be certified in accordance with § 80.1103 and meet the requirements of IMO Resolution A.811(19) (incorporated by reference, *see* § 80.7).

(e) In passenger ships, a distress panel shall be installed at the conning position. This panel shall contain either one single button which, when pressed, initiates a distress alert using all radiocommunications installations required on board for that purpose or one button for each individual installation. The panel shall clearly and visually indicate whenever any button or buttons have been pressed. Means shall be provided to prevent inadvertent activation of the button or buttons. If the satellite EPIRB is used as the secondary means of distress alerting and is not remotely activated, it shall be acceptable to have an additional EPIRB installed in the wheelhouse near the conning position.

(f) In passenger ships, information on the ship's position shall be continuously and automatically provided to all relevant radiocommunications equipment to be included in the initial distress alert when the button or buttons on the distress panel is pressed.

(g) In passenger ships, a distress alarm panel shall be installed at the

conning position. The distress alarm panel shall provide visual and aural indication of any distress alert or alerts received on board and shall also indicate through which radiocommunication service the distress alerts have been received.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46976, Aug. 7, 2003; 69 FR 64679, Nov. 8, 2004; 73 FR 4489, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011]

§ 80.1085 Ship radio equipment—General.

This section contains the general equipment requirements for all ships subject to this subpart.

(a) Ships must be provided with:

(1) A VHF radio installation capable of transmitting and receiving:

(i) DSC on the frequency 156.525 MHz (channel 70), and it must be able to initiate the transmission of distress alerts on channel 70 from the position from which the ship is normally navigated; and

(ii) Radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13), and 156.800 MHz (channel 16);

(2) A dedicated, non-scanning radio installation capable of maintaining a continuous DSC watch on VHF channel 70 which may be separate from, or combined with, that required by paragraph (a)(1)(i) of this section;

(3) A radar transponder capable of operating in the 9 GHz band, which must be stowed so that it is easily utilized (this transponder may be one of those required by § 80.1095(b) for a survival craft);

(4) A receiver capable of receiving international NAVTEX service broadcasts;

(5) If the ship is engaged on voyages in any area of INMARSAT coverage in which an international NAVTEX service is not provided, a radio facility for reception of maritime safety information by the INMARSAT enhanced group calling system, *i.e.*, SafetyNet, (this requirement does not apply to ships engaged exclusively on voyages in areas where an HF direct-printing telegraphy maritime safety information service, as identified by the IMO GMDSS Master Plan Publication, is provided and the ship is fitted with equipment capable of receiving such service); and

(6) A satellite emergency position-indicating radio beacon (satellite EPIRB) which must be:

(i) Capable of transmitting a distress alert through the polar orbiting satellite service operating in the 406.0–406.1 MHz band (406.0–406.1 MHz EPIRB); and

(ii) Installed in an easily accessible position, ready to be manually released and capable of being carried by one person into a survival craft, capable of floating free if the ship sinks and of being automatically activated when afloat, and capable of being activated manually.

(iii) Examined and tested annually in accordance with the IMO standard, IMO Circular MSC/Circ.1040 (incorporated by reference, *see* § 80.7). *See* § 80.1105(k).

(b) Ships must carry either the most recent edition of the IMO publication entitled GMDSS Master Plan of Shore-Based Facilities, the U.S. NGA Publication 117, or the Admiralty List of Radio Signals Volume 5 Global Maritime Distress and Safety System. Notice of new editions will be published on the Commission's Wireless Telecommunications Bureau Web page under ''Marine Services'' and information will be provided about obtaining the new document.

(c) All GMDSS equipment capable of transmitting an automatic distress alert which includes position of the ship must have either an integral navigation receiver or capability of being connected to an external navigation receiver. If an external navigation receiver is installed, it shall be connected to all of the alerting devices referred to in paragraph (a) of this section. If there is no navigation receiver, the position must be entered manually for each alerting device at least once every 4 hours (at the change of the navigation watch).

(d) Every passenger ship shall be provided with means for two-way on-scene radiocommunications for search and rescue purposes using the aeronautical frequencies 121.5 and 123.1 MHz from

the position from which the ship is normally navigated.

[57 FR 9065, Mar. 16, 1992, as amended at 60 FR 50122, Sept. 28, 1995; 68 FR 46977, Aug. 7, 2003; 69 FR 64679, Nov. 8, 2004; 73 FR 4489, Jan. 25, 2008; 76 FR 67616, Nov. 2, 2011; 78 FR 23158, Apr. 18, 2013]

§ 80.1087 Ship radio equipment—Sea area A1.

This section contains the additional equipment requirements for ships that remain within sea area A1 at all times.

(a) In addition to meeting the requirements of § 80.1085, ships engaged on voyages exclusively in sea area A1 must be provided with a radio installation capable of initiating the transmission of ship-to-shore distress alerts from the position from which the ship is normally navigated, operating either:

(1) On VHF using DSC; or

(2) Through the polar orbiting satellite service on 406.0–406.1 MHz (this requirement may be fulfilled by the EPIRB required by § 80.1085(a)(6), either by installing the EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(3) On MF using DSC if the ship is engaged on voyages within coverage of MF coast stations equipped with DSC; or

(4) On HF using DSC; or

(5) Through the INMARSAT geostationary satellite service if within INMARSAT coverage. This requirement may be fulfilled by an INMARSAT ship earth station capable of two way communication.

(b) The VHF radio installation, required by § 80.1085(a)(1), must also be capable of transmitting and receiving general radiocommunications using radiotelephony.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46977, Aug. 7, 2003; 69 FR 64680, Nov. 8, 2004; 73 FR 4490, Jan. 25, 2008; 76 FR 67617, Nov. 2, 2011]

§ 80.1089 Ship radio equipment—Sea areas A1 and A2.

This section contains the additional equipment requirements for ships that remain within sea areas A1 or A2 at all times. Ships fitting in accordance with this section satisfy the sea area A1 requirements denoted in § 80.1087.

(a) In addition to meeting the requirements of § 80.1085, ships engaged on voyages beyond sea area A1, but remaining within sea area A2, must be provided with:

(1) An MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

(i) 2187.5 kHz using DSC; and

(ii) 2182 kHz using radiotelephony;

(2) A radio installation capable of maintaining a continuous DSC watch on the frequency 2187.5 kHz which may be separate from or combined with, that required by paragraph (a)(1)(i) of this section; and

(3) Means of initiating the transmission of ship-to-shore distress alerts by a radio service other than MF operating either:

(i) Through the polar orbiting satellite service on 406.0–406.1 MHz (this requirement may be fulfilled by the EPIRB required by § 80.1085(a)(6), either by installing the EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(ii) On HF using DSC; or

(iii) Through the INMARSAT geostationary satellite service if within INMARSAT coverage; this requirement may be fulfilled by an INMARSAT ship earth station.

(b) It must be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (a)(1) and (a)(3) of this section from the position from which the ship is normally navigated.

(c) Ships subject to this section must be capable of transmitting and receiving general radiocommunications using radiotelephony or direct-printing telegraphy by either:

(1) A radio installation operating on working frequencies in the bands between 1605–4000 kHz or between 4000–27500 kHz (this requirement may be fulfilled by the addition of this capability to the equipment required by paragraph (a)(1) of this section); or

(2) An INMARSAT ship earth station.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46977, Aug. 7, 2003; 69 FR 64680, Nov. 8, 2004; 73 FR 4490, Jan. 25, 2008; 76 FR 67617, Nov. 2, 2011]

§ 80.1091 Ship radio equipment—Sea areas A1, A2, and A3.

This section contains the additional equipment requirements for ships that remain within sea areas A1, A2, or A3 at all times. Ships fitting in accordance with this section satisfy the requirements denoted in § 80.1087 or § 80.1089 for sea-areas A1 and A2. Ships fitting in accordance to this section have the option to comply with either the requirements of paragraph (a) or (b) of this section.

(a) In addition to meeting the requirements of § 80.1085, ships subject to this section must be provided with:

(1) An INMARSAT ship earth station capable of:

(i) Transmitting and receiving distress and safety data communications;

(ii) Initiating and receiving distress priority calls;

(iii) Maintaining watch for shore-to-ship distress alert, including those directed to specifically defined geographical areas;

(iv) Transmitting and receiving general radiocommunications, using either radiotelephony or direct-printing telegraphy; and

(2) An MF radio installation capable of transmitting and receiving, for distress and safety purposes, on the frequencies:

(i) 2187.5 kHz using DSC; and

(ii) 2182 kHz using radiotelephony; and

(3) A radio installation capable of maintaining a continuous DSC watch on the frequency 2187.5 kHz which may be separate from or combined with that required by paragraph (a)(2)(i) of this section; and

(4) Means of initiating the transmission of ship-to-shore distress alerts by a radio service operating either:

(i) Through the polar orbiting satellite service on 406.0–406.1 MHz (this requirement may be fulfilled by the EPIRB required by § 80.1085(a)(6), either by installing the EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(ii) On HF using DSC: or

(iii) Through the INMARSAT geostationary satellite service, by an additional ship earth station.

NOTE TO PARAGRAPH (a)(4)(iii): For ships subject to this subpart, sailing only in domestic waters, alternative satellite system fitting may be considered. However, the satellite system fitted must comply with all features of the INMARSAT system for its intended function. These are shown in IMO Resolution A.801(19) and in IMO Resolution A.1001(25) (both incorporated by reference, *see* § 80.7). In any case, the alternative satellite system must provide continuous coverage for all sea areas in which the ship intends to sail.

(b) In addition to meeting the requirements of § 80.1085, ships subject to this section must be provided with:

(1) An MF/HF radio installation capable of transmitting and receiving on all distress and safety frequencies in the bands between 1605–27500 kHz using DSC, radiotelephony, and narrow-band direct-printing telegraphy; and

(2) Equipment capable of maintaining DSC watch on 2187.5 kHz, 8414.5 kHz and on at least one of the distress and safety DSC frequencies 4207.5 kHz, 6312 kHz, 12577 kHz, or 16804.5 kHz although it must be possible to select any of these DSC distress and safety frequencies at any time (this equipment may be separate from, or combined with, the equipment required by paragraph (b)(1) of this section); and

(3) Means of initiating the transmission of ship-to-shore distress alerts by a radiocommunication service other than HF operating either:

(i) Through the polar orbiting satellite service on 406.0–406.1 MHz (this requirement may be fulfilled by the 406.0–406.1 MHz EPIRB required by § 80.1085(a)(6), either by installing the 406.0–406.1 MHz EPIRB close to, or by allowing remote activation from, the position from which the ship is normally navigated); or

(ii) Through the INMARSAT geostationary satellite service (this requirement may be fulfilled by an INMARSAT ship earth station).

(4) In addition, ships must be capable of transmitting and receiving general radiocommunications using

radiotelephony or direct-printing telegraphy by an MF/HF radio installation operating on working frequencies in the bands between 1605–4000 kHz and between 4000–27500 kHz (this requirement may be fulfilled by the addition of this capability to the equipment required by paragraph (b)(1) of this section).

(c) It must be possible to initiate transmission of distress alerts by the radio installations specified in paragraphs (a)(1), (a)(2), (a)(4), (b)(1), and (b)(3) of this section from the position from which the ship is normally navigated.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46977, Aug. 7, 2003; 69 FR 64680, Nov. 8, 2004; 73 FR 4490, Jan. 25, 2008; 76 FR 67617, Nov. 2, 2011]

§ 80.1093 Ship radio equipment—Sea areas A1, A2, A3, and A4.

This section contains the additional equipment requirements for ships that sail in all sea areas, *i.e.*, sea areas A1, A2, A3, and A4. Ships fitting in accordance with this section satisfy the requirements denoted in §§ 80.1087, 80.1089, and 80.1091 for sea areas A1, A2, and A3.

(a) In addition to meeting the requirements of § 80.1085 of this part, ships engaged on voyages in all sea areas must be provided with the radio installations and equipment required by § 80.1091(b), except that the equipment required by § 80.1091(b)(3)(ii) and § 80.1091(b)(3)(iii) cannot be accepted as an alternative to that required by § 80.1091(b)(3)(i), which must always be provided.

(b) Ships engaged on voyages in all sea areas also must comply with the requirements of § 80.1091(c).

[57 FR 9065, Mar. 16, 1992, as amended at 69 FR 64680, Nov. 8, 2004]

§ 80.1095 Survival craft equipment.

(a) At least three two-way VHF radiotelephone apparatus must be provided on every passenger ship and on every cargo ship of 500 tons gross tonnage and upwards. At least two two-way VHF radiotelephone apparatus must be provided on every cargo ship of between 300–500 tons gross tonnage. Portable two-way VHF radiotelephones must be stowed in such locations that they can be rapidly placed in any survival craft other than life rafts required by Regulation III/26.1.4 of the SOLAS Convention. (The SOLAS Convention can be purchased from International Maritime Organization (IMO), Publications, International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom; telephone 011 44 71 735 7611, *www.imo.org*.) Alternatively, survival craft may be fitted with a fixed two-way VHF radiotelephone installation. Two-way VHF radiotelephone apparatus, portable or fixed, must conform to performance standards as specified in § 80.1101.

(b) At least one radar transponder must be carried on each side of every passenger ship and every cargo ship of 500 tons gross tonnage and upwards. At least one radar transponder must be carried on every cargo ship of 300 tons gross tonnage and upwards but less than 500 tons gross tonnage. Such radar transponders must conform to performance standards as specified in § 80.1101. The radar transponders must be stowed in such locations that they can be rapidly placed in any survival craft other than liferafts required on cargo ships in forward and aft areas (see Regulation III/26.1.4 of the SOLAS Convention). Alternatively, one radar transponder must be stowed in each survival craft other than those required by Regulation III/26.1.4 of the SOLAS Convention. One of these radar transponders may be radar transponder required by § 80.1085(a)(3).

(c) Survival craft equipment must be tested at intervals not to exceed twelve months. For batteries used for survival craft equipment, the month and year of its manufacture must be permanently marked on the battery. Also, the month and year upon which 50 percent of its useful life will expire must be permanently marked on both the battery and the outside of the transmitter. Batteries must be replaced if 50 percent of their useful life has expired or if the transmitter has been used in an emergency situation.

[57 FR 9065, Mar. 16, 1992, as amended at 73 FR 4490, Jan. 25, 2008]

§ 80.1099 Ship sources of energy.

(a) There must be available at all times, while the ship is at sea, a supply

of electrical energy sufficient to operate the radio installations and to charge any batteries used as part of a reserve source of energy for the radio installations.

(b) A reserve source of energy to supply radio installations must be provided on every ship for the purpose of conducting distress and safety radiocommunications, in the event of failure of the ship's main and emergency sources of electrical power. The reserve sources of energy must be capable of simultaneously operating the VHF radio installation required by § 80.1085(a)(1) and, as appropriate for the sea area or sea areas for which the ship is equipped, either the MF radio installation required by § 80.1089(a)(1), the MF/HF radio installation required by § 80.1091(a)(2)(i) or § 80.1093(a), or the INMARSAT ship earth station required by § 80.1091(a)(1) and any of the additional loads mentioned in paragraphs (d), (e) and (h) of this section for a period of at least:

(1) One hour, on ships constructed on or after February 1, 1995;

(2) One hour, on ships constructed before February 1, 1995, if the emergency source of electrical power complies fully with all relevant requirements of SOLAS, Chapter II–1, Regulation 42 or 43 (as amended); or

(3) Six hours, on ships constructed before February 1, 1995, and on cargo ships of less than 500 tons gross tonnage, if the emergency source of electrical power is not provided or does not comply fully with all relevant requirements of SOLAS, Chapter II–1, Regulation 42 or 43 (as amended).

(c) The reserve sources of energy need not supply independent HF and MF radio installations at the same time. The reserve sources of energy must be independent of the propelling power of the ship and the ship's electrical system.

(d) Where, in addition to the VHF radio installation, two or more of the other radio installations, referred to in paragraph (b) of this section, can be connected to the reserve sources of energy, they must be capable of simultaneously supplying, for one hour, as specified in paragraph (b) of this section, the VHF radio installation and;

(1) All other radio installations which can be connected to the reserve sources of energy at the same time; or

(2) Whichever of the other radio installations will consume the most power, if only one of the other radio installations can be connected to the reserve sources of energy at the same time as the VHF radio installation.

(e) The reserve sources of energy may be used to supply the electrical lighting required by § 80.1083(b)(4).

(f) Where a reserve source of energy consists of a rechargeable accumulator battery or batteries:

(1) A means of automatically charging such batteries must be provided which must be capable of recharging them to minimum capacity requirements within 10 hours; and

(2) Battery charge levels should be checked at intervals of 30 days or less with equipment turned ON and the battery charger turned OFF. Portable equipment with primary batteries such as EPIRBs and SARTs should be checked at the same intervals using methods recommended by the manufacturer. The results of battery checks should be recorded in the radio log.

(g) The accumulator batteries which provide a reserve source of energy must be installed to ensure: The highest degree of service, a reasonable lifetime, reasonable safety; that the battery temperatures remain within the manufacturer's specifications whether under charge or idle; and that when fully charged, the batteries will provide at least the minimum required hours of operation under all weather conditions.

(h) If an uninterrupted input of information from the ship's navigational or other equipment to a radio installation required by this subpart (including the navigational receiver referred to in SOLAS Chapter IV, Regulation 18) is needed to ensure its proper performance, means must be provided to ensure the continuous supply of such information in the event of failure of the ship's main or emergency source of electrical power.

(i) An uninterruptible power supply or other means of ensuring a continuous supply of electrical power, within equipment tolerances, shall be provided to all GMDSS equipment that

could be affected by normal variations and interruptions of ship's power.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46977, Aug. 7, 2003]

§ 80.1101 Performance standards.

(a) The abbreviations used in this section are as follows:

(1) International Maritime Organization (IMO).

(2) International Telecommunication Union—Telecommunication Standardization Bureau (ITU-T) (Standards formerly designated as CCITT are now designated as ITU-T.)

(3) International Electrotechnical Commission (IEC).

(4) International Organization for Standardization (ISO).

(5) International Telecommunication Union—Radiocommunication Bureau (ITU-R) (Standards formerly designated as CCIR are now designated as ITU-R.)

(b) All equipment specified in this subpart must meet the general requirements for shipboard equipment in conformity with performance specifications listed in this paragraph, which are incorporated by reference. (*See* § 80.7).

(1) IMO Resolution A.694(17), as revised by IMO Resolution MSC.149(77)

(2) ITU–T E.161.

(3) ITU–T E.164.1.

(4) IEC 60092–101.

(5) IEC 60533.

(6) IEC 60945.

(7) ISO Standard 3791.

(c) The equipment specified in this subpart must also conform to the appropriate performance standards listed in paragraphs (c)(1) through (12) of this section, which are incorporated by reference (*see* § 80.7), and must be tested in accordance with the applicable IEC testing standards listed in paragraph (c)(13) of this section, which are also incorporated by reference. (*See* § 80.7).

(1) NAVTEX receivers:

(i) IMO Resolution A.525(13), as revised by IMO Maritime Safety Committee (MSC) Resolution MSC.148(77).

(ii) ITU–R M.540–2.

(2) VHF radio equipment:

(i) IMO Resolution A.803(19), as amended by IMO Resolution MSC.68(68).

(ii) ITU–R M.493–13.

(iii) ITU–R M.541–9.

(3) MF radio equipment:

(i) IMO Resolution A.804(19), as amended by IMO Resolution MSC.68(68).

(ii) ITU–R M.493–13.

(iii) ITU–R M.541–9.

(4) MF/HF radio equipment:

(i) IMO Resolution A.806(19), as amended by IMO Resolution MSC.68(68).

(ii) ITU–R M.493–13.

(iii) ITU–R M.541–9.

(iv) IMO Resolution A.700(17).

(5) 406.0–406.1 MHz EPIRBs:

(i) IMO Resolution A.810(19), as amended by IMO Resolution MSC.56(66) and IMO Resolution MSC.120(74).

(ii) IMO Resolution A.662(16).

(iii) ITU–R M.633–3.

(iv) The 406.0–406.1 MHz EPIRBs must also comply with § 80.1061.

(6) 9 GHz radar transponders:

(i) IMO Resolution A.802(19), as amended by IMO Resolution MSC.247(83).

(ii) ITU–R M.628–4.

(7) Two-Way VHF radiotelephone:

(i) IMO Resolution A.809(19), as revised by IMO Resolution MSC.149(77).

(ii) IMO Resolution MSC.80(70).

(8) INMARSAT Ship Earth Station Capable of Two-Way Communications: IMO Resolution A.808(19).

(9) INMARSAT–C SES: IMO Resolution A.807(19), as amended by IMO Resolution MSC.68(68).

(10) INMARSAT EGC: IMO Resolution A.664(16).

(11) Shipboard radar:

(i) IEC 60945.

(ii) IEC 62388 Edition 1.0 (2007–12).

(iii) IMO Resolution A.694(17).

(iv) IMO Resolution MSC.191(79).

(v) IMO Resolution MSC.192(79).

(vi) ITU–R M.1177–3.

(12) Automatic Identification Systems (AIS):

(i) ITU–R M.1371–3.

(ii) IMO Resolution MSC.74(69).

(iii) IEC 61162–1.

(iv) IEC 61993–2 .

(13) Standards for testing GMDSS equipment:

(i) IEC 61097–1.

(ii) IEC 61097–3.

(iii) IEC 61097–4.

(iv) IEC 61097–6.

(v) IEC 61097–7.

(vi) IEC 61097–8.
(vii) IEC 61097–9.
(viii) IEC 61097–10.
(ix) IEC 61097–12.
(x) IEC 61097–13.

[68 FR 46977, Aug. 7, 2003, as amended at 69 FR 64680, Nov. 8, 2004; 73 FR 4490, Jan. 25, 2008; 74 FR 5125, Jan. 29, 2009; 76 FR 67617, Nov. 2, 2011]

§ 80.1103 Equipment authorization.

(a) All equipment specified in § 80.1101 must be certificated in accordance with 47 CFR part 2 specifically for GMDSS use, except for equipment used in the INMARSAT space segment which must be type-approved by INMARSAT and verified in accordance with 47 CFR part 2 specifically for GMDSS use. The technical parameters of the equipment must conform to the performance standards as specified in § 80.1101. For emergency position-indicating radiobeacons operating on 406.0–406.1 MHz (406.0–406.1 MHz EPIRBs) that were authorized prior to April 15, 1992, and meet the requirements of § 80.1101, the manufacturer may attest by letter that the equipment (indicate FCC ID#) meets the requirements of § 80.1101 and request that it be denoted as approved for GMDSS use.

(b) Applicants for certification must submit with their applications measurement data sufficiently complete to ensure compliance with the technical parameters. The application must include the items listed in 47 CFR 2.1033. Additional measurement data or information may be requested depending upon the equipment. For items not listed in § 2.1033 of this chapter, the applicant must attest that the equipment complies with performance standards as specified in § 80.1101 and, where applicable, that measurements have been made that demonstrate the necessary compliance. Submission of representative data demonstrating compliance is not required unless requested by the Commission.

(c) Applicants for verification must attest that the equipment complies with performance standards as specified in § 80.1101 and, where applicable, that measurements have been made that demonstrate the necessary compliance. Submission of representative data demonstrating compliance is not required unless requested by the Commission. An application must include the items listed in §§ 2.953 and 2.955 of this chapter and a copy of the type-approval certification indicating that equipment meets GMDSS standards and includes all peripheral equipment associated with the specific unit under review.

(d) Submission of a sample unit is not required unless specifically requested by the Commission.

(e) In addition to the requirements in part 2 of this chapter, equipment specified in § 80.1101 shall be labeled as follows: ''This device complies with the GMDSS provisions of part 80 of the FCC rules.'' Such a label is not required for emergency position-indicating radiobeacons operating on 406.0–406.1 MHz (406.0–406.1 MHz EPIRBs) that were authorized prior to April 15, 1992.

[57 FR 9065, Mar. 16, 1992, as amended at 57 FR 44702, Sept. 29, 1992; 63 FR 36607, July 7, 1998; 68 FR 46980, Aug. 7, 2003; 69 FR 64680, Nov. 8, 2004; 73 FR 4491, Jan. 25, 2008]

§ 80.1105 Maintenance requirements.

(a) Equipment must be so designed that the main units can be replaced readily, without elaborate recalibration or readjustment. Where applicable, equipment must be constructed and installed so that it is readily accessible for inspection and on-board maintenance purposes. Adequate information must be provided to enable the equipment to be properly operated and maintained (see IMO Resolution A.569(14)).

(b) Radio equipment required by this subpart must be maintained to provide the availability of the functional requirements specified in § 80.1081 and to meet the performance standards specified in § 80.1101.

(c) On ships engaged on voyages in sea areas A1 and A2, the availability must be ensured by duplication of equipment, shore-based maintenance, or at-sea electronic maintenance capability, or a combination of these.

(d) On ships engaged on voyages in sea areas A3 and A4, the availability must be ensured by using a combination of at least two of the following methods: duplication of equipment,

shore-based maintenance, or at-sea electronic maintenance capability.

(e) Irrespective of the maintenance methods used, a ship must not depart from any port unless and until the ship is capable of performing all distress and safety functions as specified in § 80.1081.

(f) Irrespective of the maintenance methods used, all manufacturers' instruction manuals and maintenance manuals for each piece of equipment required and installed must be available on-board ship. Adequate tools, spare parts, and test equipment appropriate to the methods used by the ship as recommended by the manufacturer should be provided. The manuals, tools, spare parts, and test equipment, as applicable, should be readily accessible.

(g) If the duplication of equipment maintenance method is used, the following radio installations, in addition to other equipment requirements specified in this subpart, must be available on-board ships for their sea areas as applicable. Equipment carried in accordance with this paragraph must comply with §§ 80.1101 and 80.1103. Additionally, each radio installation must be connected to a separate antenna and be installed and be ready for immediate operation.

(1) Ships, equipped in accordance with § 80.1087 for sea area A1, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1).

(2) Ships, equipped in accordance with § 80.1089 for sea areas A1 and A2, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1) and an MF radio installation complying with the requirements of § 80.1089(a)(1) and being able to fully comply with watch requirements as specified in § 80.1123(a)(2). The MF radio installation installed for duplication must also comply with the requirements § 80.1089(c).

(3) Ships, equipped in accordance with § 80.1091 for sea areas A1, A2, and A3, must carry a VHF radio installation complying with the requirements of § 80.1085(a)(1) and either an MF/HF radio installation complying with the requirements of § 80.1091(b)(1) and being able to fully comply with watch requirements as specified in § 80.1123(a)(2) or an INMARSAT ship earth station complying with the requirements of § 80.1091(a)(1). The MF/HF radio installation or the INMARSAT ship earth station installed for duplication must also comply with the requirements § 80.1091(c).

(4) Ships, equipped in accordance with § 80.1093 for sea areas A1, A2, A3, and A4, must carry a VHF radio installation complying with the requirement of § 80.1085(a)(1) and an MF/HF radio installation complying with the requirements of § 80.1091(b)(1) and being able to fully comply with watch requirements as specified in § 80.1123(a)(2). The MF/HF radio installation installed for duplication must also comply with the requirements § 80.1091(c).

(h) The radio installations specified in paragraph (g) of this section (referred as ''duplicated equipment''), in addition to the appropriate radio equipment specified in § 80.1099 (referred as ''basic equipment''), must be connected to the reserve sources of energy required by § 80.1099. The capacity of the reserve sources of energy should be sufficient to operate the particular installation (*i.e.*, the basic equipment or the duplicated equipment) with the highest power consumption, for the appropriate period specified in § 80.1099. However, the arrangement for the reserve sources of energy must be such that a single fault in this arrangement cannot affect both the basic and the duplicated equipment.

(i) If the shore-based maintenance method is used, the following requirements apply.

(1) Maintenance services must be completed and performance verified and noted in the ship's record before departure from the first port of call entered after any failure occurs.

(2) Each GMDSS equipment must be tested and performance verified and the results noted in the ship's record before departure from every port. To accomplish this, each ship shall carry a performance checkoff sheet listing each GMDSS equipment carried on a mandatory basis.

(j) If the at-sea maintenance method is used, the following requirements apply.

(1) Adequate additional technical documentation, tools, test equipment,

and spare parts must be carried onboard ship to enable a qualified maintainer as specified in § 80.1074 to perform tests and localize and repair faults in the radio equipment.

(2) Only persons that comply with the requirements of § 80.1074 may perform at-sea maintenance on radio installations required by this subpart.

(k) Satellite EPIRBs shall be tested at intervals not exceeding 12 months for all aspects of operational efficiency with particular emphasis on frequency stability, signal strength and coding. The test may be conducted on board the ship or at an approved testing or servicing station.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46980, Aug. 7, 2003]

§ 80.1107 Test of radiotelephone station.

Unless the normal use of the required radiotelephone station demonstrates that the equipment is operating, a test communication on a required or working frequency must be made each day the ship is navigated. When this test is performed by a person other than the master and the equipment is found to be defective, the master must be promptly notified.

[76 FR 67617, Nov. 2, 2011]

OPERATING PROCEDURES FOR DISTRESS AND SAFETY COMMUNICATIONS

§ 80.1109 Distress, urgency, and safety communications.

(a) Distress traffic consists of all messages relating to the immediate assistance required by the ship in distress, including search and rescue communications and on-scene communications. Distress traffic must as far as possible be on the frequencies contained in § 80.1077.

(b) Urgency and safety communications include: navigational and meteorological warnings and urgent information; ship-to-ship safety navigation communications; ship reporting communications; support communications for search and rescue operations; other urgency and safety messages and communications relating to the navigation, movements and needs of ships and weather observation messages destined for an official meteorological service.

(c) Intership navigation safety communications are those VHF radiotelephone communications conducted between ships for the purpose of contributing to the safe movement of ships. The frequency 156.650 MHz is used for intership navigation safety communications (see § 80.1077).

§ 80.1111 Distress alerting.

(a) The transmission of a distress alert indicates that a mobile unit or person is in distress and requires immediate assistance. The distress alert is a digital selective call using a distress call format in bands used for terrestrial radiocommunication or a distress message format, which is relayed through space stations.

(b) The distress alert must be sent through a satellite either with absolute priority in general communication channels or on exclusive distress and safety frequencies or, alternatively, on the distress and safety frequencies in the MF, HF, and VHF bands using digital selective calling.

(c) The distress alert must be sent only on the authority of the person responsible for the ship, aircraft or other vehicle carrying the mobile station or the mobile earth station.

(d) All stations which receive a distress alert transmitted by digital selective calling must immediately cease any transmission capable of interfering with distress traffic and must continue watch on the digital selective call distress calling channel until the call has been acknowledged to determine if a coast station acknowledges the call using digital selective calling. Additionally, the station receiving the distress alert must set watch on the associated distress traffic frequency for five minutes to determine if distress traffic takes place. The ship can acknowledge the call using voice or narrowband direct printing as appropriate on this channel to the ship or to the rescue authority.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46980, Aug. 7, 2003]

§ 80.1113 Transmission of a distress alert.

(a) The distress alert must identify the station in distress and its position.

The distress alert may also contain information regarding the nature of the distress, the type of assistance required, the course and speed of the mobile unit, the time that this information was recorded and any other information which might facilitate rescue.

(b) The format of distress calls and distress messages must be in accordance with ITU–R M.493–13 and ITU–R M.541–9 (both incorporated by reference, *see* § 80.7), as specified in § 80.1101.

(c) Ship-to-shore distress alerts are used to alert Rescue Coordination Centers via coast stations or coast earth stations that a ship is in distress. These alerts are based on the use of transmissions via satellites (from a ship earth station or a satellite EPIRB) and terrestrial services (from ship stations and EPIRBs).

(d) Ship-to-ship distress alerts are used to alert other ships in the vicinity of the ship in distress and are based on the use of digital selective calling in the VHF and MF bands. The HF bands should not be used to notify ships in the vicinity unless no response is received within five minutes on VHF or MF.

(e) Shore-to-ship distress alert relays are used by a station or Rescue Coordination Center to relay information about a ship in distress to, as appropriate, all ships, a selected group of ships, or a specific ship by satellite and/or terrestrial means. The distress alert relay must contain the identification of the mobile unit in distress, its position and all other information which might facilitate rescue.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46980, Aug. 7, 2003; 73 FR 4491, Jan. 25, 2008; 76 FR 67617, Nov. 2, 2011]

§ 80.1114 False distress alerts.

The provisions of §§ 80.334 and 80.335 apply to false distress alerts.

[68 FR 46980, Aug. 7, 2003]

§ 80.1115 Transmission of a distress alert by a station not itself in distress.

(a) A station in the mobile or mobile-satellite service which learns that a mobile unit is in distress must initiate and transmit a distress alert relay in any of the following cases:

(1) When the mobile unit in distress is not itself in a position to transmit the distress alert; or

(2) When the master or person responsible for the mobile unit not in distress or the person responsible for the land station determines that further help is necessary.

(b) A station transmitting a distress alert relay in accordance with paragraph (a) of this section or § 80.1121(c) must indicate that it is not itself in distress.

§ 80.1117 Procedure for receipt and acknowledgement of distress alerts.

(a) Normally, distress calls received using digital selective calling are only acknowledged using a DSC acknowledgement by a coast station. Ships should delay any acknowledgement in order to give sufficient time for a coast station to acknowledge the call. In cases where no acknowledgement has been heard and no distress traffic has been heard, the ship should transmit a distress alert relay to the coast station. Upon advice from the Rescue Coordination Center, the ship may transmit a DSC acknowledgement call to stop it from being repeated. Acknowledgement by digital selective calling of receipt of a distress alert in the terrestrial services must comply with ITU–R M.541–9 (incorporated by reference, *see* § 80.7).

(b) Acknowledgement through a satellite of receipt of a distress alert from a ship earth station must be sent immediately (see § 80.1119).

(c) Acknowledgement by radiotelephony of receipt of a distress alert from a ship station or a ship earth station must be given in the following form:

(1) The distress signal MAYDAY;

(2) The call sign or other identification of the station sending the distress message, spoken three times;

(3) The words THIS IS (or DE spoken as DELTA ECHO in case of language difficulties);

(4) The call sign or other identification of the station acknowledging receipt, spoken three times;

(5) The word RECEIVED (or RRR spoken as ROMEO ROMEO ROMEO in case of language difficulties);

(6) The distress signal MAYDAY.

(d) The acknowledgement by direct-printing telegraphy of receipt of a distress alert from a ship station must be given in the following form:

(1) The distress signal MAYDAY;

(2) The call sign or other identification of the station sending the distress alert;

(3) The word DE;

(4) The call sign or other identification of the station acknowledging receipt of the distress alert;

(5) The signal RRR;

(6) The distress signal MAYDAY.

(e) The acknowledgement by direct-printing telegraphy of receipt of a distress alert from a ship earth station must be given by the coast earth station receiving the distress alert by retransmitting the ship station identity of the ship transmitting the distress alert.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46980, Aug. 7, 2003; 73 FR 4491, Jan. 25, 2008; 76 FR 67618, Nov. 2, 2011]

§ 80.1119 Receipt and acknowledgement of distress alerts by coast stations and coast earth stations.

(a) Coast stations that receive a distress alert should defer acknowledgement for a short interval so that receipt may be acknowledged by a Rescue Coordination Center. Where an acknowledgement is not forthcoming within 3 minutes, the coast station in receipt of distress alerts must ensure that they are routed to a Rescue Coordination Center as soon as possible. Coast stations must provide assistance for distress communications when requested to do so by the U.S. Coast Guard. (This subpart does not specify any radio watches for coast stations.)

(b) Coast earth stations in receipt of distress alerts must ensure that they are routed as soon as possible to a Rescue Coordination Center. Coast earth stations must relay, as soon as possible, an acknowledgement of a distress alert from a Rescue Coordination Center.

(c) Certain messages must be carried without charge, regardless of the means by which they are transmitted:

(1) Distress alert messages;

(2) Search and rescue coordination messages;

(3) Medical assistance messages where an imminent danger to life is present, or

(4) Urgent meteorological or navigational danger messages passed in the ship-to-shore direction.

§ 80.1121 Receipt and acknowledgement of distress alerts by ship stations and ship earth stations.

(a) Ship or ship earth stations that receive a distress alert must, as soon as possible, inform the master or person responsible for the ship of the contents of the distress alert.

(b) For VHF and MF, ships in receipt of a distress alert shall not transmit a distress alert relay, but should listen on the distress traffic channel for 5 minutes and, if appropriate, acknowledge the alert by radiotelephony to the ship in distress and inform the coast station and/or Rescue Coordination Center. Distress alert relays to ''all ships'' on these bands may only be sent by a ship who has knowledge that another ship in distress is not itself able to transmit the distress alert, and the Master of the ship considers that further help is necessary.

(c) For HF, ships in receipt of a distress alert shall listen on the distress traffic channel for 5 minutes. If no distress communications are heard and if the call is not acknowledged by a coast station, the ship shall transmit a distress relay on HF to the coast radio station and inform the Rescue Coordination Center. Distress alert relays to ''all Ships'' on HF may only be sent by a ship who has knowledge that another ship in distress is not itself able to transmit the distress alert, and the Master of the ship considers that further help is necessary.

(d) In cases where distress alert continues to be received from the same source, the ship may, after consultation with the Rescue Coordination Center, transmit a DSC acknowledgment to terminate the call.

(e) A ship station in receipt of a shore-to-ship distress alert relay (see § 80.1113(e)) should establish communication as directed and render such assistance as required and appropriate.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46980, Aug. 7, 2003]

§ 80.1123 Watch requirements for ship stations.

(a) While at sea, all ships must maintain a continuous watch:

(1) On VHF DSC channel 70, if the ship is fitted with a VHF radio installation in accordance with § 80.1085(a)(2);

(2) On the distress and safety DSC frequency 2187.5 kHz, if the ship is fitted with an MF radio installation in accordance with § 80.1089(a)(2) or § 80.1091(a)(3);

(3) On the distress and safety DSC frequencies 2187.5 kHz and 8414.5 kHz also on at least one of the distress and safety DSC frequencies 4207.5 kHz, 6312 kHz, 12577 kHz, or 16804.5 kHz appropriate to the time of day and the geographical position of the ship, if the ship is fitted with an MF/HF radio installation in accordance with § 80.1091(a)(2)(ii) or § 80.1093(a) of this part (this watch may be kept by means of a scanning receiver limited to six distress and safety DSC frequencies); and

(4) For satellite shore-to-ship distress alert, if the ship is fitted with an INMARSAT ship earth station in accordance with § 80.1091(a)(1).

(b) While at sea, all ships must maintain radio watches for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is navigating.

(c) Every ship while at sea must maintain, when practicable, a continuous listening watch on VHF Channel 16. This watch must be kept at the position from which the ship is normally navigated or at a position which is continuously manned.

(d) On receipt of a distress alert transmitted by use of digital selective calling techniques, ship stations must set watch on the radiotelephone distress and safety traffic frequency associated with the distress and safety calling frequency on which the distress alert was received.

(e) Ship stations with narrow-band direct printing equipment must set watch on the narrow-band direct-printing frequency associated with the distress alert signal if it indicates that narrow-band direct-printing is to be used for subsequent distress communications. If practicable, they should additionally set watch on the radiotelephone frequency associated with the distress alert frequency.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 73 FR 4492, Jan. 25, 2008]

§ 80.1125 Search and rescue coordinating communications.

(a) The distress signal consists of the word MAYDAY, pronounced in radiotelephony as the French expression ''M'aider''. For distress traffic by radiotelephony, when establishing communications, calls must be prefixed by the distress signal MAYDAY.

(b) Error correction techniques, in accordance with ITU–R M.625–3 (incorporated by reference, *see* § 80.7), as specified in § 80.1101, must be used for distress traffic by direct-printing telegraphy. All messages must be preceded by at least one carriage return, a line feed signal, a letter shift signal and the distress signal MAYDAY.

(c) Distress communications by direct-printing telegraphy should be in the ARQ mode when ships are communicating directly to the Coast Guard or other coast stations on channels which they normally guard. Other distress communications, including those on simplex channels provided for that purpose, should be in the broadcast forward error correction mode. The ARQ mode may subsequently be used when it is advantageous to do so.

(d) The Rescue Coordination Center responsible for controlling a search and rescue operation will also coordinate the distress traffic relating to the incident or may appoint another station to do so.

(e) The Rescue Coordination Center coordinating distress traffic, the unit coordinating search and rescue operations, or the coast station involved may impose silence on stations which interfere with that traffic. This instruction may be addressed to all stations or to one station only, according to circumstances. In either case, the following will be used:

(1) In radiotelephony, the signal SEELONCE MAYDAY, pronounced as the French expression ''silence, m'aider'';

(2) In narrow-band direct-printing telegraphy normally using forward-error correcting mode, the signal SILENCE MAYDAY. However, the ARQ mode may be used when it is advantageous to do so.

(f) Until they receive the message indicating that normal working may be resumed (see paragraph (h) of this section), all stations which are aware of the distress traffic, and which are not taking part in it, and which are not in distress, are forbidden to transmit on the frequencies in which the distress traffic is taking place.

(g) Stations following distress traffic that are able to continue normal service may do so when the distress traffic is well established and on condition that it observes the provisions of paragraph (f) of this section and that it does not interfere with distress traffic.

(h) When distress traffic has ceased on frequencies which have been used for distress traffic, the Rescue Coordination Center controlling a search and rescue operation must initiate a message for transmission on these frequencies indicating that distress traffic has finished.

(i) In radiotelephony, the message referred to in paragraph (h) of this section consists of:

(1) The distress signal MAYDAY;

(2) The call ''Hello all stations'' or CQ (spoken as CHARLIE QUEBEC) spoken three times;

(3) The words THIS IS (or DE spoken as DELTA ECHO in the case of language difficulties);

(4) The call sign or other identification of the station sending the message;

(5) The time when the distress situation has ceased;

(6) The name and call sign of the mobile station which was in distress;

(7) The words SEELONCE FEENEE pronounced as the French words ''silence fini''

(j) In direct-printing telegraphy, the message referred to in paragraph (h) of this section consists of:

(1) The distress signal MAYDAY;

(2) The call CQ;

(3) The word DE;

(4) The call sign or other identification of the station sending the message;

(5) The time when distress situation has ceased;

(6) The name and call sign of the mobile station which was in distress; and

(7) The words SILENCE FINI.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 73 FR 4492, Jan. 25, 2008; 76 FR 67618, Nov. 2, 2011]

§ 80.1127 On-scene communications.

(a) On-scene communications are those between mobile unit in distress and assisting mobile units, and between the mobile units and unit coordinating search and rescue operations.

(b) Control of on-scene communications is the responsibility of the unit coordinating search and rescue operations. Simplex communications must be used so that all on-scene mobile stations may share relevant information concerning the distress incident. If direct-printing telegraphy is used, it must be in the forward error-correcting mode in accordance with ITU-R Recommendation M.625–3, with Annex, as specified in § 80.1101.

(c) The preferred frequencies in radiotelephony for on-scene communications are 156.8 MHz and 2182 kHz. The frequency 2174.5 kHz may also be used for ship-to-ship on-scene communications using narrow-band direct-printing telegraphy in the forward error correcting mode in accordance with ITU–R M.625–3 (incorporated by reference, *see* § 80.7), as specified in § 80.1101.

(d) In addition to 156.8 MHz and 2182 kHz, the frequencies 3023 kHz, 4125 kHz, 5680 kHz, 123.1 MHz and 156.3 MHz may be used for ship-to-aircraft on-scene communications.

(e) The selection or designation of on-scene frequencies is the responsibility of the unit coordinating search and rescue operations. Normally, once an on-scene frequency is established, a continuous aural or teleprinter watch is maintained by all participating on-scene mobile units on the selected frequency.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 76 FR 67618, Nov. 2, 2011]

§ 80.1129 Locating and homing signals.

(a) Locating signals are radio transmissions intended to facilitate the

finding of a mobile unit in distress or the location of survivors. These signals include those transmitted by searching units and those transmitted by the mobile unit in distress, by survival craft, by float-free EPIRBS, by satellite EPRIBs, and by search and rescue radar transponders to assist the searching units.

(b) Homing signals are those locating signals which are transmitted by mobile units in distress, or by survival craft, for the purpose of providing searching units with a signal that can be used to determine the bearing to the transmitting stations.

(c) Locating signals may be transmitted in the following frequency bands: 117.975–136 MHz, 121.5 MHz, 156–174 MHz, 406–406.1 MHz, and 9200–9500 MHz.

(d) The 9 GHz locating signals must be in accordance with ITU–R M.628–4 (incorporated by reference, *see* § 80.7), as specified in § 80.1101.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 76 FR 67618, Nov. 2, 2011; 78 FR 23158, Apr. 18, 2013]

§ 80.1131 Transmissions of urgency communications.

(a) In a terrestrial system the announcement of the urgency message must be made on one or more of the distress and safety calling frequencies specified in § 80.1077 using digital selective calling and the urgency call format. A separate announcement need not be made if the urgency message is to be transmitted through the maritime mobile-satellite service.

(b) The urgency signal and message must be transmitted on one or more of the distress and safety traffic frequencies specified in § 80.1077, or via the maritime mobile-satellite service or on other frequencies used for this purpose.

(c) The urgency signal consists of the words PAN PAN. In radiotelephony each word of the group must be pronounced as the French word ''panne''.

(d) The urgency call format and the urgency signal indicate that the calling station has a very urgent message to transmit concerning the safety of a mobile unit or a person.

(e) In radiotelephony, the urgency message must be preceded by the urgency signal, repeated three times, and the identification of the transmitting station.

(f) In narrow-band direct-printing, the urgency message must be preceded by the urgency signal and the identification of the transmitting station.

(g) The urgency call format or urgency signal must be sent only on the authority of the master or the person responsible for the mobile unit carrying the mobile station or mobile earth station.

(h) The urgency call format or the urgency signal may be transmitted by a land station or a coast earth station with the approval of the responsible authority.

(i) When an urgency message which calls for action by the stations receiving the message has been transmitted, the station responsible for its transmission must cancel it as soon as it knows that action is no longer necessary.

(j) Error correction techniques, in accordance with ITU–R M.625–3 (incorporated by reference, *see* § 80.7), as specified in § 80.1101, must be used for urgency messages by direct-printing telegraphy. All messages must be preceded by at least one carriage return, a line feed signal, a letter shift signal, and the urgency signal PAN PAN.

(k) Urgency communications by direct-printing telegraphy should be in the ARQ mode when communicating directly to the Coast Guard or other coast stations on channels which they normally guard. Other distress communications, including those on simplex channels provided for that purpose, should be in the broadcast forward error correction mode. The ARQ mode may subsequently be used when it is advantageous to do so.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 76 FR 67618, Nov. 2, 2011]

§ 80.1133 Transmission of safety communications.

(a) In a terrestrial system the announcement of the safety message must be made on one or more of the distress and safety calling frequencies specified in § 80.1077 using digital selective calling techniques. A separate announcement need not be made if the

message is to be transmitted through the maritime mobile-satellite service.

(b) The safety signal and message must normally be transmitted on one or more of the distress and safety traffic frequencies specified in § 80.1077, or via the maritime mobile satellite service or on other frequencies used for this purpose.

(c) The safety signal consists of the word SECURITE. In radiotelephony, it is pronounced as in French.

(d) The safety call format or the safety signal indicates that the calling station has an important navigational or meteorological warning to transmit.

(e) In radiotelephony, the safety message must be preceded by the safety signal, repeated three times, and the identification of the transmitting station.

(f) In narrow-band direct-printing, the safety message must be preceded by the safety signal and the identification of the transmitting station.

(g) Error correction techniques, in accordance with ITU–R M.625–3 (incorporated by reference, *see* § 80.7), as specified in § 80.1101, must be used for safety messages by direct-printing telegraphy. All messages must be preceded by at least one carriage return, a line feed signal, a letter shift signal, and the safety signal SECURITE.

(h) Safety communications by direct-printing telegraphy should be in the ARQ mode when communicating directly to the Coast Guard or other coast stations on channels which they normally guard. Other distress communications, including those on simplex channels provided for that purpose, should be in the broadcast forward error correction mode. The ARQ mode may subsequently be used when it is advantageous to do so.

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46981, Aug. 7, 2003; 76 FR 67618, Nov. 2, 2011]

§ 80.1135 Transmission of maritime safety information.

(a) The operational details of the stations transmitting maritime safety information in accordance with this section are indicated in the ITU List of Radiodetermination and Special Service Stations and the IMO Master Plan of Shore-Based Facilities.

(b) The mode and format of the transmissions mentioned in this section is in accordance with ITU–R M.540–2 (incorporated by reference, *see* § 80.7) as specified in § 80.1101.

(c) Maritime safety information is transmitted by means of narrow-band direct-printing telegraphy with forward error correction using the frequency 518 kHz in accordance with the international NAVTEX system (see § 80.1077).

(d) The frequency 490 kHz may be used, after full implementation of the GMDSS, for the transmission of maritime safety information by means of narrow-band direct-printing telegraphy with forward error correction (see § 80.1077).

(e) Internationally, the frequency 4209.5 kHz is used for NAVTEX-type transmissions by means of narrow-band direct-printing telegraphy with forward error correction (see § 80.1077).

(f) Maritime safety information is transmitted by means of narrow-band direct-printing telegraphy with forward error correction using the frequencies 4210 kHz, 6314 kHz, 8416.5 kHz, 12579 kHz, 16806.5 kHz, 19680.5, 22376 kHz, and 26100.5 kHz (see § 80.1077).

(g) Maritime safety information is transmitted via satellite in the maritime mobile-satellite service using the band 1530–1545 MHz (see § 80.1077).

[57 FR 9065, Mar. 16, 1992, as amended at 68 FR 46982, Aug. 7, 2003; 76 FR 67618, Nov. 2, 2011]

Subpart X—Voluntary Radio Installations

GENERAL

§ 80.1151 Voluntary radio operations.

Voluntary ships must meet the rules applicable to the particular mode of operation as contained in the following subparts of this part and as modified by § 80.1153:

Operating Requirements and Procedures—Subpart C

Equipment Technical Requirements—Subpart E

Frequencies—Subpart H

§ 80.1153 Station log and radio watches.

(a) Licensees of voluntary ships are not required to maintain radio station logs.

(b) When a ship radio station of a voluntary ship is being operated, the appropriate general purpose watches must be maintained in accordance with §§ 80.147 and 80.310.

[73 FR 4492, Jan. 25, 2008]

VOLUNTARY TELEGRAPHY

§ 80.1155 Radioprinter.

Radioprinter operations provide record communications between authorized maritime mobile stations.

(a) *Supplementary eligibility requirements*. Ships must be less than 1600 gross tons.

(b) *Scope of communication*. (1) Ship radioprinter communications may be conducted with an associated private coast station.

(2) Ships authorized to communicate by radioprinter with a common private coast station may also conduct intership radioprinter operations.

(3) Only those communications which are associated with the business and operational needs of the ship are authorized.

(c) *Assignment and use of frequencies*. (1) Frequencies for radioprinter operations are shared by several radio services including the maritime mobile service.

(2) Ship stations must conduct radioprinter operations only on frequencies assigned to their associated private coast station for that purpose.

(d) *Authorization procedure*. The authorization procedure for ship station radioprinter operations is as follows:

(1) The associated private coast station must submit an application for specific radioprinter frequencies and provide the names of ships to be served.

(2) When the private coast station receives a radioprinter license, it must provide copies of their license to all ships with which they are authorized to conduct radioprinter operations. The private coast station license copy must be kept as part of the ship station license.

(3) Any addition or deletion of ships must be notified to the Commission by letter.

§ 80.1157 Facsimile.

Facsimile is a form of telegraphy for the transmission and receipt of fixed images. Ships must use facsimile techniques only with authorized public coast stations.

§ 80.1159 Narrow-band direct-printing (NB-DP).

NB-DP is a form of telegraphy for the transmission and receipt of direct printing public correspondence. Ships must use NB-DP techniques only with authorized public coast stations.

§ 80.1161 Emergency position indicating radiobeacon (EPIRB).

EPIRB transmissions must be used only under emergency conditions. The various classes of EPIRB's are described in subpart V of this part.

VOLUNTARY TELEPHONY

§ 80.1165 Assignment and use of frequencies.

Frequencies for general radiotelephone purposes are available to ships in three radio frequency bands. Use of specific frequencies must meet the Commission's rules concerning the scope of service and the class of station with which communications are intended. The three frequency bands are:

(a) *156–158 MHz (VHF/FM Radiotelephone)*. Certain frequencies within this band are public correspondence frequencies and they must be used as working channels when communicating with public coast stations. Other working frequencies within the band are categorized by type of communications for which use is authorized when communicating with a private coast station or between ships. Subpart H of this part lists the frequencies and types of communications for which they are available.

(b) *1600–4000 kHz (SSB Radiotelephone)*. Specific frequencies within this band are authorized for single sideband (SSB) communications with public and private coast stations or between ships. The specific frequencies are listed in subpart H of this part.

(c) *4000–23000 kHz (SSB Radiotelephone).* Specific frequencies within this band are authorized for SSB communications with public and private coast stations. The specific frequencies are listed in subpart H of this part.

§ 80.1169 [Reserved]

§ 80.1171 Assignment and use of frequencies.

(a) The frequencies assignable to AMTS stations are listed in § 80.385(a). These frequencies are assignable to ship and coast stations for voice, facsimile and radioteletypewriter communications.

(b) [Reserved]

ON-BOARD COMMUNICATIONS

§ 80.1175 Scope of communications of on-board stations.

(a) On-board stations communicate:

(1) With other units of the same station for operational communications on the ship.

(2) With on-board stations of another ship or shore facility to aid in oil pollution prevention during the transfer of 250 or more barrels of oil.

(3) With other units of the same station in the immediate vicinity of the ship for operational communications related to docking, life boat and emergency drills or in the maneuvering of cargo barges and lighters.

(b) An on-board station may communicate with a station in the Business Radio Service operating on the same frequency when the vessel on which the on-board station is installed is alongside the dock or cargo handling facility.

§ 80.1177 Assignment and use of frequencies.

On-board frequencies are assignable only to ship stations. When an on-board repeater is used, paired frequencies must be used. On-board repeater frequencies must be used for single frequency simplex operations. On-board frequencies are listed in subpart H.

§ 80.1179 On-board repeater limitations.

When an on-board repeater is used, the following limitations must be met:

(a) The on-board repeater antenna must be located no higher than 3 meters (10 feet) above the vessel's highest working deck.

(b) Each on-board repeater must have a timer that deactivates the transmitter if the carrier remains on for more than 3 minutes.

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44954, Aug. 25, 1993]

§ 80.1181 Station identification.

(a) On-board stations must identify when:

(1) The vessel is within 32 km (20 miles) of any coastline; or

(2) The communications are likely to be received aboard another vessel.

(b) Identification, when required, must be:

(1) Transmitted at the beginning and the end of a series of communications. Whenever communications are sustained for a period exceeding 15 minutes, station identification must be transmitted at intervals not exceeding 15 minutes.

(2) In English and must include the name of the vessel, followed by a number or name designating the respective mobile unit, for example: ''S.S. United States Mobile One, this is Mobile Two.''

[51 FR 31213, Sept. 2, 1986, as amended at 58 FR 44954, Aug. 25, 1993]

§ 80.1183 Remote control for maneuvering or navigation.

(a) An on-board station may be used for remote control of maneuvering or navigation control systems aboard the same ship or, where that ship is towing a second ship, aboard the towed ship.

(b) The remote control system transmissions must contain a synchronization signal and a message signal composed of a documentation number group, a company control group, an actuation instruction group, and a termination of transmission group.

(1) The synchronization signal must be the control character ''SYN'', transmitted twice.

(2) The message signal is composed of the following groups:

(i) The documentation number group must be transmitted once and be the ship's U.S. Coast Guard documentation

number or, if the ship is not documented, the call sign of the on-board station.

(ii) The company control group, composed of three letters taken from AAA through ZZZ, which must be transmitted one time.

(iiii) The actuation instruction group, composed of two letters taken from AA through ZZ, which must be transmitted one time.

(iv) The termination of transmission group, composed of the control character ''EM'', which must be transmitted twice.

(c) The receiving system must:

(1) Reject any actuation instruction until it recognizes and accepts the company control group.

(2) Reject any company control group until it recognizes and accepts the documentation number group.

(d) The emission employed must be G2D. The provisions applicable to G3E emission are also applicable to G2D emission.

(e) The binary information must be applied to the carrier as frequency-shift keying (FSK) of the standard tones 1070 and 1270 Hz. ''0'' (low) must correspond to 1070 Hz and ''1'' (high) must correspond to 1270 Hz. The signalling rate must be 300 bits per second.

(f) The alphabet employed must be the United States of America Standard Code for Information Interchange (USASCII), contained in the United States of America Standards Institute publication USAS X3.4–1968.

(1) The bit sequence must be least significant bit first to most significant bit (bit 1 through 7), consecutively.

(2) The character structure must consist of 8 bits (seven bits plus one character parity bit) having equal time intervals.

(3) ''Odd'' parity is required.

MOBILE-SATELLITE STATIONS

§ 80.1185 Supplemental eligibility for mobile-satellite stations.

Stations in the maritime mobile-satellite service must meet the eligibility requirements contained in this section.

(a) A station license for a ship earth station may be issued to:

(1) The owner or operator of a ship.

(2) A corporation proposing to furnish a nonprofit radio communication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary, where the party to be served is the owner or operator of the ship aboard which the ship earth station is to be installed and operated.

(b) A station license for a portable ship earth station may be issued to the owner or operator of portable earth station equipment proposing to furnish satellite communication services on board more than one ship or fixed offshore platform located in the marine environment.

[52 FR 27003, July 17, 1987, as amended at 54 FR 49995, Dec. 4, 1989]

§ 80.1187 Scope of communication.

Ship earth stations must be used for telecommunications related to the business or operation of ships and for public correspondence of persons on board. Portable ship earth stations are authorized to meet the business, operational and public correspondence telecommunication needs of fixed offshore platforms located in the marine environment as well as ships. The types of emission are determined by the INMARSAT organization.

[52 FR 27003, July 17, 1987]

§ 80.1189 Portable ship earth stations.

(a) Portable ship earth stations are authorized to operate on board more than one ship. Portable ship earth stations are also authorized to be operated on board fixed offshore platforms located in international or United States domestic waters.

(b) Portable ship earth stations must meet the rule requirements of ship earth stations with the exeception of eligibility.

(c) Where the license of the portable ship earth station is not the owner of the ship or fixed platform on which the station is located, the station must be operated with the permission of the owner or operator of the ship or fixed platform.

[52 FR 27003, July 17, 1987]

RADIODETERMINATION

§ 80.1201 Special provisions for cable-repair ship stations.

(a) A ship station may be authorized to use radio channels in the 285–315 kHz band in Region 1 and 285–325 kHz in any other region for cable repair radiodetermination purposes under the following conditions:

(1) The radio transmitting equipment attached to the cable-marker buoy associated with the ship station must be described in the station application;

(2) The call sign used for the transmitter operating under the provisions of this section is the call sign of the ship station followed by the letters ''BT'' and the identifying number of the buoy.

(3) The buoy transmitter must be continuously monitored by a licensed radiotelegraph operator on board the cable repair ship station; and

(4) The transmitter must operate under the provisions in § 80.375(b).

Subpart Y—Competitive Bidding Procedures

SOURCE: 63 FR 40065, July 27, 1998, unless otherwise noted.

§ 80.1251 Maritime communications subject to competitive bidding.

Mutually exclusive initial applications for VPCSA licenses and AMTS coast station licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this part.

[67 FR 45375, July 9, 2002]

§ 80.1252 Designated entities.

(a) This section addresses certain issues concerning designated entities in maritime communications services subject to competitive bidding.

(b) *Eligibility for small business provisions.* (1) A small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $15 million for the preceding three years.

(2) A very small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $3 million for the preceding three years.

(3) [Reserved]

(4) A consortium of small businesses (or a consortium of very small businesses) is a conglomerate organization formed as a joint venture between or among mutually independent business firms, each of which individually satisfies the definition in paragraph (b)(1) of this section (or each of which individually satisfies the definition in paragraph (b)(2) of this section). Where an applicant or licensee is a consortium of small businesses (or very small businesses), the gross revenues of each small business (or very small business) shall not be aggregated.

(c) A winning bidder that qualifies as a small business, as defined in § 80.1252(b)(1), or consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a very small business, as defined in § 80.1252(b(2), or consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(i) of this chapter.

(d) A winning bidder that qualifies as a small business or a consortium of small businesses as defined in § 80.1252(b)(1) or § 80.1252(b)(5) of this subpart may use the bidding credit specified in § 1.2110(e)(2)(ii) of this chapter. A winning bidder that qualifies as a very small business or a consortium of very small businesses as defined in § 80.1252(b)(2) or § 80.1252(b)(5) of this subpart may use the bidding credit specified in § 1.2110(e)(2)(i) of this chapter.

[63 FR 40065, July 27, 1998, as amended at 68 FR 43000, July 21, 2003]

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AUTHORITY: 47 U.S.C. 154, 303 and 307(e), unless otherwise noted.

SOURCE: 53 FR 28940, Aug. 1, 1988, unless otherwise noted.

Subpart A—General Information

§ 87.1 Basis and purpose.

This section contains the statutory basis and provides the purpose for which this part is issued.

(a) *Basis.* The rules for the aviation services in this part are promulgated under the provisions of the Communications Act of 1934, as amended, which vests authority in the Federal Communications Commission (Commission) to regulate radio transmission and to issue licenses for radio stations. These rules conform with applicable statutes and international treaties, agreements and recommendations to which the United States is a party. The most significant of these documents are listed with the short title appearing in parentheses:

(1) Communications Act of 1934, as amended—(Communications Act).

(2) International Telecommunication Union Radio Regulations, in force for the United States—(Radio Regulations).

(3) The Convention on International Civil Aviation—(ICAO Convention).

(b) *Purpose.* This part states the conditions under which radio stations may be licensed and used in the aviation services. These rules do not govern U.S. Government radio stations.

§ 87.3 Other applicable rule parts.

Other applicable CFR title 47 parts include:

(a) Part 0 contains the Commission's organizations and delegations of authority. Part 0 also lists Commission publications, standards and procedures for access to Commission records and location of Commission monitoring stations.

(b) *Part 1* contains rules of practice and procedure for license applications, adjudicatory proceedings, rule making proceedings, procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and forfeiture proceedings; and the environmental processing requirements that, together with the procedures specified in § 17.4(c) of this chapter, if applicable, must be complied with prior to the initiation of construction.

(c) Part 2 contains the Table of Frequency Allocations and special requirements in international regulations, recommendations, agreements, and treaties. This part also contains standards and procedures concerning marketing of radio frequency devices, and for obtaining equipment authorization.

(d) Part 13 contains information and rules for the licensing of commercial radio operators.

(e) *Part 17* contains requirements for construction, marking and lighting of

antenna towers, and the environmental notification process that must be completed before filing certain antenna structure registration applications.

(f) Part 80 contains rules for the maritime services. Certain maritime frequencies are available for use by aircraft stations for distress and safety, public correspondence and operational communications.

[53 FR 28940, Aug. 1, 1988, as amended at 77 FR 3955, Jan. 26, 2012]

§ 87.5 Definitions.

Aeronautical advisory station (unicom). An aeronautical station used for advisory and civil defense communications primarily with private aircraft stations.

Aeronautical enroute station. An aeronautical station which communicates with aircraft stations in flight status or with other aeronautical enroute stations.

Aeronautical fixed service. A radiocommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air transport. A station in this service is an aeronautical fixed station.

Aeronautical Mobile Off-Route (OR) Service. An aeronautical mobile service intended for communications, including those relating to flight coordination, primarily outside national or international civil air routes.(RR)

Aeronautical Mobile Route (R) Service. An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.(RR)

Aeronautical Mobile-Satellite Off-Route (OR) Service. An aeronautical mobile-satellite service intended for communications, including those relating to flight coordination, primarily outside national and international civil air routes.(RR)

Aeronautical Mobile-Satellite Route (R) Service. An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.(RR)

Aeronautical Mobile-Satellite Service. A mobile-satellite service in which mobile earth stations are located on board aircraft.

Aeronautical mobile service. A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may also participate; emergency position-indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.

Aeronautical multicom station. An aeronautical station used to provide communications to conduct the activities being performed by, or directed from, private aircraft.

Aeronautical radionavigation service. A radionavigation service intended for the benefit and for the safe operation of aircraft.

Aeronautical search and rescue station. An aeronautical station for communication with aircraft and other aeronautical search and rescue stations pertaining to search and rescue activities with aircraft.

Aeronautical station. A land station in the aeronautical mobile service. In certain instances an aeronautical station may be located, for example, on board ship or on a platform at sea.

Aeronautical utility mobile station. A mobile station used on airports for communications relating to vehicular ground traffic.

Air carrier aircraft station. A mobile station on board an aircraft which is engaged in, or essential to, the transportation of passengers or cargo for hire.

Aircraft data link system. A system used to provide data communications between the aircraft and ground personnel necessary for the safe, efficient and economic operation of the aircraft.

Aircraft data link land test station. A station which is used to test and calibrate aircraft data link system communications equipment.

Aircraft earth station (AES). A mobile earth station in the aeronautical mobile-satellite service located on board an aircraft.

Aircraft station. A mobile station in the aeronautical mobile service other than a survival craft station, located on board an aircraft.

Air operations area. All airport areas where aircraft can operate, either

under their own power or while in tow. The airport operations area includes runways, taxiways, apron areas, and all unpaved surfaces within the airport's perimeter fence. An apron area is a surface in the air operations area where aircraft park and are serviced (refueled, loaded with cargo, and/or boarded by passengers).

Airport. An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

Airport control tower (control tower) station. An aeronautical station providing communication between a control tower and aircraft.

Automatic dependent surveillance—broadcast (ADS–B) Service. Broadcast transmissions from aircraft, supporting aircraft-to-aircraft or aircraft-to-ground surveillance applications, including position reports, velocity vector, intent and other relevant information about the aircraft.

Automatic terminal information service-broadcast (ATIS-B). The automatic provision of current, routine information to arriving and departing aircraft throughout a 24-hour period or a specified portion thereof.

Automatic weather observation station (AWOS) or automatic surface observation station (ASOS). A land station located at an airport and used to automatically transmit weather information to aircraft.

Aviation service organization. Any business firm which maintains facilities at an airport for the purposes of one or more of the following general aviation activities: (a) Aircraft fueling; (b) aircraft services (e.g. parking, storage, tie-downs); (c) aircraft maintenance or sales; (d) electronics equipment maintenance or sales; (e) aircraft rental, air taxi service or flight instructions; and (f) baggage and cargo handling, and other passenger or freight services.

Aviation services. Radio-communication services for the operation of aircraft. These services include aeronautical fixed service, aeronautical mobile service, aeronautical radiodetermination service, and secondarily, the handling of public correspondence on frequencies in the maritime mobile and maritime mobile satellite services to and from aircraft.

Aviation support station. An aeronautical station used to coordinate aviation services with aircraft and to communicate with aircraft engaged in unique or specialized activities. (See subpart K)

Differential GPS (DGPS). A system which transmits corrections to the GPS derived position.

Emergency locator transmitter (ELT). A transmitter of an aircraft or a survival craft actuated manually or automatically that is used as an alerting and locating aid for survival purposes.

Emergency locator transmitter (ELT) test station. A land station used for testing ELTs or for training in the use of ELTs.

Expendable Launch Vehicle (ELV). A booster rocket that can be used only once to launch a payload, such as a missile or space vehicle.

Flight Information Service-Broadcast (FIS-B). A broadcast service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

Flight test aircraft station. An aircraft station used in the testing of aircraft or their major components.

Flight test land station. An aeronautical station used in the testing of aircraft or their major components.

Glide path station. A radionavigation land station which provides vertical guidance to aircraft during approach to landing.

Instrument landing system (ILS). A radionavigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing.

Instrument landing system glide path. A system of vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.

Instrument landing system localizer. A system of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of

the runway or along some other path when used as an offset.

Land station. A station in the mobile service not intended to be used while in motion.

Localizer station. A radionavigation land station which provides horizontal guidance to aircraft with respect to a runway center line.

Marker beacon station. A radionavigation land station in the aeronautical radionavigation service which employs a marker beacon. A marker beacon is a transmitter which radiates vertically a distinctive pattern for providing position information to aircraft.

Mean power (of a radio transmitter). The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

Microwave landing system. An instrument landing system operating in the microwave spectrum that provides lateral and vertical guidance to aircraft having compatible avionics equipment.

Mobile service. A radiocommunication service between mobile and land stations, or between mobile stations. A mobile station is intended to be used while in motion or during halts at unspecified points.

Operational fixed station. A fixed station, not open to public correspondence, operated by and for the sole use of persons operating their own radiocommunication facilities in the public safety, industrial, land transportation, marine, or aviation services.

Peak envelope power (of a radio transmitter). The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

Private aircraft station. A mobile station on board an aircraft not operated as an air carrier. A station on board an air carrier aircraft weighing less than 12,500 pounds maximum certified takeoff gross weight may be licensed as a private aircraft station.

Racon station. A radionavigation land station which employs a racon. A racon (radar beacon) is a transmitter-receiver associated with a fixed navigational mark, which when triggered by a radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information.

Radar. A radiodetermination system based upon the comparison of reference signals with radio signals reflected, or re-transmitted, from the position to be determined.

Radio altimeter. Radionavigation equipment, on board an aircraft or spacecraft, used to determine the height of the aircraft or spacecraft above the Earth's surface or another surface.

Radiobeacon station. A station in the radionavigation service the emissions of which are intended to enable a mobile station to determine its bearing or direction in relation to the radiobeacon station.

Radiodetermination service. A radiocommuncation service which uses radiodetermination. Radiodetermination is the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation of radio waves. A station in this service is called a radiodetermination station.

Radiolocation service. A radiodetermination service for the purpose of radiolocation. Radiolocation is the use of radiodetermination for purposes other than those of radionavigation.

Radionavigation land test stations. A radionavigation land station which is used to transmit information essential to the testing and calibration of aircraft navigational aids, receiving equipment, and interrogators at predetermined surface locations. The Maintenance Test Facility (MTF) is used primarily to permit maintenance testing by aircraft radio service personnel. The Operational Test Facility (OTF) is used primarily to permit the pilot to check a radionavigation system aboard the aircraft prior to takeoff.

Radionavigation service. A radiodetermination service for the purpose of radionavigation. Radionavigation is the use of radiodetermination for the

purpose of navigation, including obstruction warning.

Re-usable launch vehicle (RLV). A booster rocket that can be recovered after launch, refurbished and relaunched.

Surveillance radar station. A radionavigation land station in the aeronautical radionavigation service employing radar to detect the presence of aircraft within its range.

Survival craft station. A mobile station in the maritime or aeronautical mobile service intended solely for survival purposes and located on any lifeboat, life raft or other survival equipment.

Traffic information services—broadcast (TIS–B). Traffic information broadcasts derived from ground-based radar systems.

Universal access transceiver (UAT). A radio datalink system authorized to operate on the frequency 978 MHz to support Automatic Dependent Surveillance—Broadcast (ADS–B) Service, Traffic Information Services—Broadcast (TIS–B) and Flight Information Service—Broadcast (FIS–B).

VHF Omni directional range station (VOR). A radionavigation land station in the aeronautical radionavigation service providing direct indication of the bearing (omni-bearing) of that station from an aircraft.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11719, Mar. 22, 1989; 54 FR 49995, Dec. 4, 1989; 55 FR 4175, Feb. 7, 1990; 57 FR 45749, Oct. 5, 1992; 64 FR 27474, May 20, 1999; 69 FR 32879, June 14, 2004; 71 FR 70676, Dec. 6, 2006; 78 FR 45074, July 26, 2013; 78 FR 61205, Oct. 3, 2013]

Subpart B—Applications and Licenses

§ 87.17 Scope.

Part 1 of the Commission's rules contains the general rules of practice and procedure applicable to proceedings before the Commission and for the filing of applications for radio station licenses in the aviation services. Specific guidance for each type of radio service license in aviation services is set forth in this part.

[63 FR 68957, Dec. 14, 1998]

§ 87.18 Station license required.

(a) Except as noted in paragraph (b) of this section, stations in the aviation service must be licensed by the FCC either individually or by fleet.

(b) An aircraft station is licensed by rule and does not need an individual license issued by the FCC if the aircraft station is not required by statute, treaty, or agreement to which the United States is signatory to carry a radio, and the aircraft station does not make international flights or communications. Even though an individual license is not required, an aircraft station licensed by rule must be operated in accordance with all applicable operating requirements, procedures, and technical specifications found in this part.

[61 FR 58011, Nov. 12, 1996]

§ 87.19 Basic eligibility.

(a) *General.* Foreign governments or their representatives cannot hold station licenses.

(b) *Aeronautical enroute and aeronautical fixed stations.* The following persons cannot hold an aeronautical enroute or an aeronautical fixed station license.

(1) Any alien or the representative of any alien;

(2) Any corporation organized under the laws of any foreign government;

(3) Any corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or its representative, or by a corporation organized under the laws of a foreign country; or

(4) Any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or its representatives, or by any corporation organized under the laws of a foreign country, if the Commission finds that the public interest will be served by the refusal or revocation of such license.

[53 FR 28940, Aug. 1, 1988, as amended at 61 FR 55581, Oct. 28, 1996]

§ 87.25 Filing of applications.

(a) [Reserved]

(b) An application must be filed with the Commission in accordance with part 1, subpart F of this chapter. Applications requiring fees as set forth at part 1, subpart G of this chapter must be filed in accordance with § 0.401(b) of the rules.

(c) One application may be submitted for the total number of aircraft stations in the fleet (fleet license).

(d) One application for aeronautical land station license may be submitted for the total number of stations in the fleet.

(e) One application for modification or transfer of control may be submitted for two or more stations when the individual stations are clearly identified and the following elements are the same for all existing or requested station licenses involved:

(1) Applicant;

(2) Specific details of request;

(3) Rule part.

[53 FR 28940, Aug. 1, 1988, as amended at 56 FR 64715, Dec. 12, 1991; 63 FR 68957, Dec. 14, 1998; 64 FR 53241, Oct. 1, 1999; 69 FR 32879, June 14, 2004]

§ 87.27 License term.

Licenses for stations in the aviation services will normally be issued for a term of ten years from the date of original issuance, or renewal.

[78 FR 25175, Apr. 29, 2013]

§ 87.29 Partial grant of application.

Whenever the Commission, without a hearing, grants an application in part or with any privileges, terms, or conditions other than those requested, the action will be considered as a grant of the application unless the applicant, within 30 days from the date on which such grant is made, or from its effective date if a later day is specified, files with the Commission a written protest, rejecting the grant as made. Upon receipt of such protest, the Commission will vacate its original action upon the application and, if necessary, set the application for hearing.

§ 87.35 Cancellation of license.

When a station permanently discontinues operation the station license must be canceled in accordance with the procedures set forth in part 1 of this chapter.

[63 FR 68957, Dec. 14, 1998]

§ 87.39 Equipment acceptable for licensing.

Transmitters listed in this part must be certificated for a particular use by the Commission based upon technical requirements contained in subpart D of this part.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 36607, July 7, 1998]

§ 87.41 Frequencies.

(a) *Applicant responsibilities.* The applicant must propose frequencies to be used by the station consistent with the applicant's eligibility, the proposed operation and the frequencies available for assignment. Applicants must cooperate in the selection and use of frequencies in order to minimize interference and obtain the most effective use of stations. See subpart E and the appropriate subpart applicable to the class of station being considered.

(b) *Licensing limitations.* Frequencies are available for assignment to stations on a shared basis only and will not be assigned for the exclusive use of any licensee. The use of any assigned frequency may be restricted to one or more geographical areas.

(c) *Government frequencies.* Frequencies allocated exclusively to federal government radio stations may be licensed. The applicant for a government frequency must provide a satisfactory showing that such assignment is required for inter-communication with government stations or required for coordination with activities of the federal government. The Commission will coordinate with the appropriate government agency before a government frequency is assigned.

(d) *Assigned frequency.* The frequency coinciding with the center of an authorized bandwidth of emission must be specified as the assigned frequency. For single sideband emission, the carrier frequency must also be specified.

§ 87.43 Operation during emergency.

A station may be used for emergency communications in a manner other

than that specified in the station license or in the operating rules when normal communication facilities are disrupted. The Commission may order the discontinuance f any such emergency service.

§ 87.45 Time in which station is placed in operation.

This section applies only to unicom stations and radionavigation land stations, excluding radionavigation land test stations. When a new license has been issued or additional operating frequencies have been authorized, the station or frequencies must be placed in operation no later than one year from the date of the grant. The licensee must notify the Commission in accordance with § 1.946 of this chapter that the station or frequencies have been placed in operation.

[69 FR 32879, June 14, 2004]

§ 87.47 Application for a portable aircraft station license.

A person may apply for a portable aircraft radio station license if the need exists to operate the same station on more than one U.S. aircraft.

§ 87.51 Aircraft earth station commissioning.

(a) [Reserved]

(b) Aircraft earth stations authorized to operate in the Inmarsat space segment must display the Commission license together with the commissioning certificate issued by Inmarsat. Notwithstanding the requirements of this paragraph, aircraft earth stations may operate in the Inmarsat space segment without an Inmarsat-issued commissioning certificate if written approval is obtained from Inmarsat in addition to the license from the Commission.

[57 FR 45749, Oct. 5, 1992, as amended at 63 FR 68957, Dec. 14, 1998]

Subpart C—Operating Requirements and Procedures

OPERATING REQUIREMENTS

§ 87.69 Maintenance tests.

The licensee may make routine maintenance tests on equipment other than emergency locator transmitters if there is no interference with the communications of any other station. Procedures for conducting tests on emergency locator transmitters are contained in subpart F.

§ 87.71 Frequency measurements.

A licensed operator must measure the operating frequencies of all land-based transmitters at the following times:

(a) When the transmitter is originally installed;

(b) When any change or adjustment is made in the transmitter which may affect an operating frequency; or

(c) When an operating frequency has shifted beyond tolerance.

§ 87.73 Transmitter adjustments and tests.

A general radiotelephone operator must directly supervise and be responsible for all transmitter adjustments or tests during installation, servicing or maintenance of a radio station. A general radiotelephone operator must be responsible for the proper functioning of the station equipment.

§ 87.75 Maintenance of antenna structure marking and control equipment.

The owner of each antenna structure required to be painted and/or illuminated under the provisions of Section 303(q) of the Communications Act of 1934, as amended, shall operate and maintain the antenna structure painting and lighting in accordance with part 17 of this chapter. In the event of default by the owner, each licensee or permittee shall be individually responsible for conforming to the requirements pertaining to antenna structure painting and lighting.

[61 FR 4368, Feb. 6, 1996]

§ 87.77 Availability for inspections.

The licensee must make the station and its records available for inspection upon request.

RADIO OPERATOR REQUIREMENTS

§ 87.87 Classification of operator licenses and endorsements.

(a) Commercial radio operator licenses issued by the Commission are

classified in accordance with the Radio Regulations of the International Telecommunication Union.

(b) The following licenses are issued by the Commission. International classification, if different from the license name, is given in parentheses. The licenses and their alphanumeric designator are listed in descending order.

(1) T–1. First Class Radiotelegraph Operator's Certificate. Beginning May 20, 2013, no applications for new First Class Radiotelegraph Operator's Certificates will be accepted for filing.

(2) T–2. Second Class Radiotelegraph Operator's Certificate. Beginning May 20, 2013, no applications for new Second Class Radiotelegraph Operator's Certificates will be accepted for filing.

(3) T–3. Third Class Radiotelegraph Operator's Certificate (radiotelegraph operator's special certificate). Beginning May 20, 2013, no applications for new Third Class Radiotelegraph Operator's Certificates will be accepted for filing.

(4) T. Radiotelegraph Operator License.

(5) G General Radiotelephone Operator Licenes (radiotelephone operator's general certificate)

(6) MP Marine Radio Operator Permit (radiotelephone operator's restricted certificate)

(7) RP Restricted Radiotelephone Operator Permit (radiotelephone operator's restricted certificate)

[53 FR 28940, Aug. 1, 1988, as amended at 78 FR 23158, Apr. 18, 2013]

§ 87.89 Minimum operator requirements.

(a) A station operator must hold a commercial radio operator license or permit, except as listed in paragraph (d).

(b) The minimum operator license or permit required for operation of each specific classification is:

MINIMUM OPERATOR LICENSE OR PERMIT

Land stations, all classes

—All frequencies except VHF telephony transmitters providing domestic service .....RP

Aircraft stations, all classes

—Frequencies below 30 MHz allocated exclusively to aeronautical mobile services .....RP
—Frequencies below 30 MHz not allocated exclusively to aeronautical mobile services .....MP or higher
—Frequencies above 30 MHz not allocated exclusively to aeronautical mobile services and assigned for international use .....MP or higher
—Frequencies above 30 MHz not assigned for international use .....none
—Frequencies not used solely for telephone or exceeding 250 watts carrier power or 1000 watts peak envelope power.....G or higher

(c) The operator of a telephony station must directly supervise and be responsible for any other person who transmits from the station, and must ensure that such communications are in accordance with the station license.

(d) No operator license is required to:

(1) Operate an aircraft radar set, radio altimeter, transponder or other aircraft automatic radionavigation transmitter by flight personnel;

(2) Test an emergency locator transmitter or a survival craft station used solely for survival purposes;

(3) Operate an aeronautical enroute station which automatically transmits digital communications to aircraft stations;

(4) Operate a VHF telephony transmitter providing domestic service or used on domestic flights.

§ 87.91 Operation of transmitter controls.

The holder of a marine radio operator permit or a restricted radiotelephone operator permit must perform only transmitter operations which are controlled by external switches. These operators must not perform any internal adjustment of transmitter frequency determining elements. Further, the stability of the transmitter frequencies at a station operated by these operators must be maintained by the transmitter itself. When using an aircraft radio station on maritime mobile service frequencies the carrier power of the transmitter must not exceed 250 watts (emission A3E) or 1000 watts (emission R3E, H3E, or J3E).

OPERATING PROCEDURES

§ 87.103 Posting station license.

(a) *Stations at fixed locations.* The license or a photocopy must be posted or

retained in the station's permanent records.

(b) *Aircraft radio stations*. The license must be either posted in the aircraft or kept with the aircraft registration certificate. If a single authorization covers a fleet of aircraft, a copy of the license must be either posted in each aircraft or kept with each aircraft registration certificate.

(c) *Aeronautical mobile stations*. The license must be retained as a permanent part of the station records.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11720, Mar. 22, 1989]

§ 87.105 Availability of operator permit or license.

All operator permits or licenses must be readily available for inspection.

§ 87.107 Station identification.

(a) *Aircraft station*. Identify by one of the following means:

(1) Aircraft radio station call sign.

(2) The type of aircraft followed by the characters of the registration marking (''N'' number) of the aircraft, omitting the prefix letter ''N.'' When communication is initiated by a ground station, an aircraft station may use the type of aircraft followed by the last three characters of the registration marking. Notwithstanding any other provision of this section, an aircraft being moved by maintenance personnel from one location in an airport to another location in that airport may be identified by a station identification consisting of the name of the company owning or operating the aircraft, followed by the word ''Maintenance'' and additional alphanumeric characters of the licensee's choosing.

(3) The FAA assigned radiotelephony designator of the aircraft operating organization followed by the flight identification number.

(4) An aircraft identification approved by the FAA for use by aircraft stations participating in an organized flying activity of short duration.

(b) *Land and fixed stations*. Identify by means of radio station call sign, its location, its assigned FAA identifier, the name of the city area or airport which it serves, or any additional identification required. An aeronautical enroute station which is part of a multistation network may also be identified by the location of its control point.

(c) *Survival craft station*. Identify by transmitting a reference to its parent aircraft. No identification is required when distress signals are transmitted automatically. Transmissions other than distress or emergency signals, such as equipment testing or adjustment, must be identified by the call sign or by the registration marking of the parent aircraft followed by a single digit other than 0 or 1.

(d) *Exempted station*. The following types of stations are exempted from the use of a call sign: Airborne weather radar, radio altimeter, air traffic control transponder, distance measuring equipment, collision avoidance equipment, racon, radio relay, radionavigation land test station (MTF), and automatically controlled aeronautical enroute stations.

[53 FR 28940, Aug. 1, 1988, as amended at 71 FR 70676, Dec. 6, 2006]

§ 87.109 Station logs.

(a) A station at a fixed location in the international aeronautical mobile service must maintain a log in accordance with Annex 10 of the ICAO Convention.

(b) A station log must contain the following information:

(1) The name of the agency operating the station.

(2) The identification of the station.

(3) The date.

(4) The time of opening and closing the station.

(5) The frequencies being guarded and the type of watch (continuous or scheduled) being maintained on each frequency.

(6) Except at intermediate mechanical relay stations where the provisions of this paragraph need not be complied with, a record of each communication showing text of communication, time communications completed, station(s) communicated with, and frequency used.

(7) All distress communications and action thereon.

(8) A brief description of communications conditions and difficulties, including harmful interference. Such entries should include, whenever practicable, the time at which interference was experienced, the character, radio frequency and identification of the interfering signal.

(9) A brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken.

(10) Such additional information as may be considered by the operator to be of value as part of the record of the stations operations.

(c) Stations maintaining written logs must also enter the signature of each operator, with the time the operator assumes and relinquishes a watch.

[69 FR 32879, June 14, 2004]

§ 87.111 Suspension or discontinuance of operation.

The licensee of any airport control tower station or radionavigation land station must notify the nearest FAA regional office upon the temporary suspension or permanent discontinuance of the station. The FAA regional office must be notified again when service resumes.

[69 FR 32880, June 14, 2004]

Subpart D—Technical Requirements

§ 87.131 Power and emissions.

The following table lists authorized emissions and maximum power. Power must be determined by direct measurement.

Class of station	Frequency band/ frequency	Authorized emission(s) [9]	Maximum power [1]
Aeronautical advisory	VHF	A3E	10 watts. [10]
Aeronautical multicom	VHF	A3E	10 watts.
Aeronautical enroute and aeronautical fixed.	HF	R3E, H3E, J3E, J7B, H2B, J2D	6 kw.
	HF	A1A, F1B, J2A, J2B	1.5 kw.
	VHF	A3E, A9W G1D, A2D.	
Aeronautical search and rescue	VHF	A3E	10 watts.
	HF	R3E, H3E, J3E	100 watts.
Operational fixed	VHF	G3E, F2D	30 watts.
Flight test land	VHF	A3E	200 watts.
	UHF	F2D, F9D, F7D	25 watts. [3]
	HF	H2B, J3E, J7D, J9W	6.0 kw.
Aviation support	VHF	A3E	50 watts.
Airport control tower	VHF	A3E, G1D, G7D	50 watts.
	Below 400 kHz	A3E	15 watts.
Aeronautical utility mobile	VHF	A3E	10 watts.
	1090 MHz	M1D	20 watts.
Aircraft data link land test	131.450 MHz, 131.550 MHz, 131.725 MHz, 131.825 MHz, 136.850 MHz.	A2D	100 microwatts.
	136.900 MHz, 136.925 MHz, 136.950 MHz, 136.975 MHz.	G1D	100 microwatts.
Radionavigation land test	108.150 MHz	A9W	1 milliwatt.
	334.550 MHz	A1N	1 milliwatt.
	Other VHF	M1A, XXA, A1A, A1N, A2A, A2D, A9W	1 watt.
	Other UHF	M1A, XXA, A1A, A1N, A2A, A2D, A9W	1 watt.
	5031.0 MHz	F7D	1 watt.
Radionavigation land	Various [4]	Various [4]	Various. [4]
	Aeronautical Frequencies		
Aircraft (Communication)	UHF	F2D, F9D, F7D	25 watts.
	VHF	A3E, A9W, G1D, G7D, A2D	55 watts.
	HF	R3E, H3E, J3E, J7B, H2B, J7D, J9W	400 watts.
	HF	A1A, F1B, J2A, J2B	100 watts.

Class of station	Frequency band/ frequency	Authorized emission(s) [9]	Maximum power [1]
	Marine Frequencies [5]		
	156.300 MHz	G3E	5 watts.
	156.375 MHz	G3E	5 watts.
	156.400 MHz	G3E	5 watts.
	156.425 MHz	G3E	5 watts.
	156.450 MHz	G3E	5 watts.
	156.625 MHz	G3E	5 watts.
	156.800 MHz	G3E	5 watts.
	156.900 MHz	G3E	5 watts.
	157.425 MHz	G3E	5 watts.
	HF [6]	R3E, H3E, J3E, J2B, F1B, A3E	1000 watts. 250 watts.
	MF [6]	R3E, H3E, J3E, J2B, F1B	1000 watts.
	HF [6]	A3E	250 watts.
(Radionavigation)	Various [7]	Various [7]	Various. [7]
Aircraft earth	UHF	G1D, G1E, G1W	60 watts. [8]
Differential GPS	VHF	G7D	Various. [2]

[1] The power is measured at the transmitter output terminals and the type of power is determined according to the emission designator as follows:
(i) Mean power (pY) for amplitude modulated emissions and transmitting both sidebands using unmodulated full carrier.
(ii) Peak envelope power (pX) for all emission designators other than those referred to in paragraph (i) of this note.
[2] Power and antenna height are restricted to the minimum necessary to achieve the required service.
[3] Transmitter power may be increased to overcome line and duplexer losses but must not exceed 25 watts delivered to the antenna.
[4] Frequency, emission, and maximum power will be determined after coordination with appropriate Government agencies.
[5] To be used with airborne marine equipment certificated for part 80 (ship) and used in accordance with part 87.
[6] Applicable only to marine frequencies used for public correspondence.
[7] Frequency, emission, and maximum power will be determined by appropriate standards during the certification process.
[8] Power may not exceed 60 watts per carrier, as measured at the input of the antenna subsystem, including any installed diplexer. The maximum EIRP may not exceed 2000 watts per carrier.
[9] Excludes automatic link establishment.
[10] Power is limited to 0.5 watt, but may not exceed 2 watts when station is used in an automatic unattended mode.

[54 FR 11720, Mar. 22, 1989, as amended at 57 FR 45749, Oct. 5, 1992; 62 FR 40308, July 28, 1997; 63 FR 36607, July 7, 1998; 64 FR 27474, May 20, 1999; 66 FR 26798, May 15, 2001; 69 FR 32880, June 14, 2004; 78 FR 61205, Oct. 3, 2013]

§ 87.133 Frequency stability.

(a) Except as provided in paragraphs (c), (d), (f), and (g) of this section, the carrier frequency of each station must be maintained within these tolerances:

Frequency band (lower limit exclusive, upper limit inclusive), and categories of stations	Tolerance [1]	Tolerance [2]
(1) Band-9 to 535 kHz:		
Aeronautical stations	100	100
Aircraft stations	200	100
Survival craft stations on 500 kHz.	5,000	20 Hz [3]
Radionavigation stations	100	100
(2) Band-1605 to 4000 kHz:		
Aeronautical fixed stations:		
Power 200 W or less	100	100 [8]
Power above 200 W	50	50 [8]
Aeronautical stations:		
Power 200 W or less	100 [7]	100 [7 8]
Power above 200 W	50 [7]	50 [7 8]
Aircraft stations	100 [7]	100 [7]
Survival craft stations on 2182 kHz.	200	20 Hz [3]
(3) Band-4 to 29.7 MHz:		
Aeronautical fixed stations:		
Power 500 W or less	50	
Power above 500 W	15	
Single-sideband and Independent-sideband emission:		
Power 500 W or less		50 Hz
Power above 500 W		20 Hz
Class F1B emissions		10 Hz
Other classes of emission:		
Power 500 W or less		20
Power above 500 W		10
Aeronautical stations:		
Power 500 W or less	[7] 100	100 [7]
Power above 500 W	[7] 50	50 [7]
Aircraft stations	[7] 100	100 [7]
Survival craft stations on 8364 kHz.	200	50 Hz [3]
(4) Band-29.7 to 100 MHz:		
Aeronautical fixed stations:		
Power 200 W or less	50	
Power above 200 W	30	
Power 50 W or less		30
Power above 50 W		20
Operational fixed stations:		
73–74.6 MHz (Power 50 W or less).	50	30
73–74.6 MHz (Power above 50 W).	20	20
72–73.0 MHz and 75.4–76.0 MHz.	5	5
Radionavigation stations	100	50
(5) Band-108 to 137 MHz:		
Aeronautical stations	[4] 50	[12] 20
Emergency locator transmitter test stations.	50	50

Frequency band (lower limit exclusive, upper limit inclusive), and categories of stations	Tolerance [1]	Tolerance [2]
Survival craft stations on 121.5 MHz.	50	50
Emergency locator stations	50	50
Aircraft and other mobile stations in the Aviation Services.	[5] 50	[13] 30
Radionavigation stations	20	20
Differential GPS		2
(6) Band-137 to 470MHz:		
Aeronautical stations	50	20
Survival craft stations on 243 MHz.	50	50
Aircraft stations	50 [5]	30 [10]
Radionavigation stations	50	50
Emergency locator transmitters on 406 MHz.	N/A	5
(7) Band-470 to 2450 MHz:		
Aeronautical stations	100	20
Aircraft stations	100	20
Aircraft earth station		320 Hz [11]
Aeronautical utility mobile stations on 1090 MHz.	1000	1000
Radionavigation stations:		
470–960 MHz	500	500
960–1215 MHz	20	20
1215–2450 MHz	500	500
(8) Band-2450 to 10500 MHz:		
Radionavigation stations	[6 9] 1250	1250 [6 9]
(9) Band-10.5 GHz to 40 GHz:		
Radionavigation stations	5000	5000

[1] This tolerance is the maximum permitted until January 1, 1990, for transmitters installed before January 2, 1985, and used at the same installation. Tolerance is indicated in parts in 10^6 unless shown as Hertz (Hz).

[2] This tolerance is the maximum permitted after January 1, 1985 for new and replacement transmitters and to all transmitters after January 1, 1990. Tolerance is indicated in parts in 10^6 unless shown as Hertz (Hz).

[3] For transmitters first approved after November 30, 1977.

[4] The tolerance for transmitters approved between January 1, 1966, and January 1, 1974, is 30 parts in 10^6. The tolerance for transmitters approved after January 1, 1974, and stations using offset carrier techniques is 20 parts in 10^6.

[5] The tolerance for transmitters approved after January 1, 1974, is 30 parts in 10^6.

[6] In the 5000 to 5250 MHz band, the FAA requires a tolerance of ±10 kHz for Microwave Landing System stations which are to be a part of the National Airspace System (FAR 171).

[7] For single-sideband transmitters operating in the frequency bands 1605–4000 kHz and 4–29.7 MHz which are allocated exclusively to the Aeronautical Mobile (R) Service, the tolerance is: Aeronautical stations, 10 Hz; aircraft stations, 20 Hz.

[8] For single-sideband radiotelephone transmitters the tolerance is: In the bands 1605–4000 kHz and 4–29.7 MHz for peak envelope powers of 200 W or less and 500 W or less, respectively, 50 Hz; in the bands 1605–4000 kHz and 4–29.7 MHz for peak envelope powers above 200 W and 500 W, respectively, 20 Hz.

[9] Where specific frequencies are not assigned to radar stations, the bandwidth occupied by the emissions of such stations must be maintained within the band allocated to the service and the indicated tolerance does not apply.

[10] Until January 1, 1997, the maximum frequency tolerance for transmitters with 50 kHz channel spacing installed before January 2, 1985, is 50 parts in 10^6.

[11] For purposes of certification, a tolerance of 160 Hz applies to the reference oscillator of the AES transmitter. This is a bench test.

[12] For emissions G1D and G7D, the tolerance is 2 parts per 10^6.

[13] For emissions G1D and G7D, the tolerance is 5 parts per 10^6.

(b) The power shown in paragraph (a) of this section is the peak envelope power for single-sideband transmitters and the mean power for all other transmitters.

(c) For single-sideband transmitters, the tolerance is:

(1) All aeronautical stations on land—10 Hz.

(2) All aircraft stations—20 Hz.

(d) For radar transmitters, except non-pulse signal radio altimeters, the frequency at which maximum emission occurs must be within the authorized frequency band and must not be closer than 1.5/T MHz to the upper and lower limits of the authorized bandwidth, where T is the pulse duration in microseconds.

(e) The Commission may authorize tolerances other than those specified in this section upon a satisfactory showing of need.

(f) The carrier frequency tolerance of transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands manufactured before January 2, 1985, is 0.003 percent. The carrier frequency tolerance of transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands manufactured after January 1, 1985, is 0.002 percent. After January 1, 1990, the carrier frequency tolerance of all transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands is 0.002 percent.

(g) Any aeronautical enroute service transmitter operating in U.S. controlled airspace with 8.33 kHz channel spacing (except equipment being tested by avionics equipment manufacturers and flight test stations prior to delivery to their customers for use outside U.S. controlled airspace) must achieve 0.0005% frequency stability when operating in that mode.

[53 FR 28940, Aug. 1, 1988, as amended at 56 FR 38084, Aug. 12, 1991; 57 FR 45749, Oct. 5, 1992; 58 FR 31027, May 26, 1993; 63 FR 36607, July 7, 1998; 64 FR 27474, May 20, 1999; 66 FR 26799, May 15, 2001; 69 FR 32880, June 14, 2004; 76 FR 17350, Mar. 29, 2011; 78 FR 61205, Oct. 3, 2013]

§ 87.135 Bandwidth of emission.

(a) Occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5 percent of the total mean power of a given emission.

(b) The authorized bandwidth is the maximum occupied bandwidth authorized to be used by a station.

(c) The necessary bandwidth for a given class of emission is the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

§ 87.137 Types of emission.

(a) The assignable emissions, corresponding emission designators and authorized bandwidths are as follows:

Class of emission	Emission designator	Authorized bandwidth (kilohertz)		
		Below 50 MHz	Above 50 MHz	Frequency deviation
A1A [1]	100HA1A	0.25		
A1N	300HA1N		0.75	
A2A	2K04A2A	2.74	50	
A2D	6K0A2D		50	
A2D [5]	13K0A2D		50	
A3E [2]	6K00A3E	.....	50 [3]	
A3E	5K6A3E	.....	8.33	
kHz [17]				
A3X [4]	3K20A3X		25	
A9W [5]	13K0A9W		25	
F1B [1]	1K70F1B	1.7		
F1B [1]	2K40F1B	2.5		
F1D [18]	1M30F1D	.....	1300 kHz	312.5 kHz
F2D	5M0F2D		([9])	
F3E [6]	16K0F3E		20	5
F3E [7]	36K0F3E		40	15
F7D [8]	5M0F7D		[9]	
F9D	5M0F9D	.....	[9]	
G1D	16K0G1D	.....	20 kHz	
G1D [16]	21K0G1D		25	
G1D	14K0G1D	.....	25	
F9D	5M0F9D	.....	[9]	
G1D	16K0G1D	.....	20 kHz	
G3E [6]	16K0G3E		20	5
G7D	14K0G7D		25	
H2B [10] [11]	2K80H2B	3.0		
H3E [11] [12]	2K80H3E	3.0		
J2A [1]	100HJ2A	0.25		
J2B [1]	1K70J2B	1.7		
	2K40J2B	2.5		
J3E [11] [12]	2K80J3E	3.0		
J7B [11]	2K80J7B	3.0		
J7D	5M0J7D		[9]	
J9W [11]	2K80J9W	3.0		
M1A	620HM1A			
M1D	14M0M1D	14.0	.....	
NON	NON		None [15]	
PON [13]	[9]		[9]	
R3E [11] [12]	2K80R3E	3.0		
XXA [14]	1K12XXA	2.74		

NOTES:

[1] A1A, F1B, J2A and J2B are permitted provided they do not cause harmful interference to H2B, J3E, J7B and J9W.

[2] For use with an authorized bandwidth of 8.0 kilohertz at radiobeacon stations. A3E will not be authorized:

(i) At existing radiobeacon stations that are not authorized to use A3 and at new radiobeacon stations unless specifically recommended by the FAA for safety purposes.

(ii) At existing radiobeacon stations currently authorized to use A3, subsequent to January 1, 1990, unless specifically recommended by the FAA for safety purposes.

[3] In the band 117.975–136 MHz, the authorized bandwidth is 25 kHz for transmitters approved after January 1, 1974.

[4] Applicable only to Survival Craft Stations and to the emergency locator transmitters and emergency locator transmitter test stations employing modulation in accordance with that specified in § 87.141 of the Rules. The specified bandwidth and modulation requirements shall apply to emergency locator transmitters for which approval is granted after October 21, 1973.

[5] This emission may be authorized for audio frequency shift keying and phase shift keying for digital data links on any frequency listed in § 87.263(a)(1), § 87.263(a)(3) or § 87.263(a)(5). 13K0A2D emission may be authorized on frequencies not used for voice communications. If the channel is used for voice communications, 13K0A9W emission may be authorized, provided the data is multiplexed on the voice carrier without derogating voice communications.

[6] Applicable to operational fixed stations in the bands 72.0–73.0 MHz and 75.4–76.0 MHz and to CAP stations using F3 on 143.900 MHz and 148.150 MHz.

[7] Applicable to operational fixed stations presently authorized in the band 73.0–74.6 MHz.

[8] The authorized bandwidth is equal to the necessary bandwidth for frequency or digitally modulated transmitters used in aeronautical telemetering and associated aeronautical telemetry or telecommand stations operating in the 1435–1535 MHz and 2310–2390 MHz bands. The necessary bandwidth must be computed in accordance with part 2 of this chapter.

[9] To be specified on license.

[10] H2B must be used by stations employing digital selective calling.

[11] For A1A, F1B and single sideband emissions, except H2B, the assigned frequency must be 1400 Hz above the carrier frequency.

[12] R3E, H3E, and J3E will be authorized only below 25000 kHz. Only H2B, J3E, J7B, and J9W are authorized, except that A3E and H3E may be used only on 3023 kHz and 5680 kHz for search and rescue operations.

[13] The letters "K, L, M, Q, V, W, and X" may also be used in place of the letter "P" for pulsed radars.

[14] Authorized for use at radiobeacon stations.

[15] Applicable only to transmitters of survival craft stations, emergency locator transmitter stations and emergency locator transmitter test stations approved after October 21, 1973.

[16] Authorized for use by aircraft earth stations. Lower values of necessary and authorized bandwidth are permitted.

[17] In the band 117.975–137 MHz, the Commission will not authorize any 8.33 kHz channel spaced transmissions or the use of their associated emission designator within the U.S. National Airspace System, except, on an optional basis, by Aeronautical Enroute Stations and Flight Test Stations, or by avionics equipment manufacturers which are required to perform installation and checkout of such radio systems prior to delivery to their customers. For transmitters certificated to tune to 8.33 kHz channel spacing as well as 25 kHz channel spacing, the authorized bandwidth is 8.33 kHz when tuned to an 8.33 kHz channel.

[18] Authorized only for Universal Access Transceiver use at 978 MHz.

(b) For other emissions, an applicant must determine the emission designator by using part 2 of this chapter.

(c) A license to use radiotelephony includes the use of tone signals or signaling devices whose sole function is to establish or maintain voice communications.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 7333, Mar. 1, 1990; 55 FR 13535, Apr. 11, 1990; 55 FR 28627, July 12, 1990; 56 FR 11518, Mar. 19, 1991; 57 FR 45749, Oct. 5, 1992; 58 FR 30127, May 26, 1993; 63 FR 36607, July 7, 1998; 63 FR 68957, Dec. 14, 1998; 64 FR 27475, May 20, 1999; 66 FR 26799, May 15, 2001; 69 FR 32881, June 14, 2004; 71 FR 70676, Dec. 6, 2006; 76 FR 17351, Mar. 29, 2011; 78 FR 61205, Oct. 3, 2013]

§ 87.139 Emission limitations.

(a) Except for ELTs and when using single sideband (R3E, H3E, J3E), or frequency modulation (F9) or digital modulation (F9Y) for telemetry or telecommand in the frequency bands 1435–1535 MHz and 2310–2390 MHz or digital modulation (G7D) for differential GPS, the mean power of any emission must be attenuated below the mean power of the transmitter (pY) as follows:

(1) When the frequency is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth the attenuation must be at least 25 dB;

(2) When the frequency is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth the attenuation must be at least 35 dB.

(3) When the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth the attenuation for aircraft station transmitters must be at least 40 dB; and the attenuation for aeronautical station transmitters must be at least $43 + 10 \log_{10}$ pY dB.

(b) For aircraft station transmitters and for aeronautical station transmitters first installed before February 1, 1983, and using H2B, H3E, J3E, J7B or J9W, the mean power of any emissions must be attenuated below the mean power of the transmitter (pY) as follows:

(1) When the frequency is removed from the assigned frequency by more than 50 percent up to and including 150 percent of the authorized bandwidth of 4.0 kHz, the attenuation must be at least 25 dB.

(2) When the frequency is removed from the assigned frequency by more than 150 percent up to and including 250 percent of the authorized bandwidth of 4.0 kHz, the attenuation must be at least 35 dB.

(3) When the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth of 4.0 kHz for aircraft station transmitters the attenuation must be at least 40 dB; and for aeronautical station transmitters the attenuation must be at least $43 + 10 \log_{10}$ pY dB.

(c) For aircraft station transmitters first installed after February 1, 1983, and for aeronautical station transmitters in use after February 1, 1983, and using H2B, H3E, J3E, J7B or J9W, the peak envelope power of any emissions must be attenuated below the peak envelope power of the transmitter (pX) as follows:

(1) When the frequency is removed from the assigned frequency by more than 50 percent up to and including 150 percent of the authorized bandwidth of 3.0 kHz, the attenuation must be at least 30 dB.

(2) When the frequency is removed from the assigned frequency by more than 150 percent up to and including 250 percent of the authorized bandwidth of 3.0 kHz, the attenuation must be at least 38 dB.

(3) When the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth of 3.0 kHz for aircraft transmitters the attenuation must be at least 43 dB. For aeronautical station transmitters with transmitter power up to and including 50 watts the attenuation must be at least $43 + 10 \log_{10}$ pX dB and with transmitter power more than 50 watts the attenuation must be at least 60 dB.

(d) Except for telemetry in the 1435–1535 MHz band, when the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth for aircraft stations above 30 MHz and all ground stations the attenuation must be at least $43+10 \log_{10}$ pY dB.

(e) When using frequency modulation or digital modulation for telemetry or telecommand in the 1435–1535 MHz and 2310–2390 MHz frequency bands with an authorized bandwidth equal to or less than 1 MHz the emissions must be attenuated as follows:

(1) On any frequency removed from the assigned frequency by more than 100 percent of the authorized bandwidth up to and including 100 percent plus 0.5 MHz, the attenuation must be at least 60 dB, when measured in a 3.0 kHz bandwidth. This signal need not be attenuated more than 25 dB below 1 milliwatt.

(2) On any frequency removed from the assigned frequency by more than 100 percent of the authorized bandwidth plus 0.5 MHz, the attenuation

must be at least 55 + 10 $\log_{10}$ pY dB when measured in a 3.0 kHz bandwidth.

(f) When using frequency modulation or digital modulation for telemetry or telecommand in the 1435–1535 MHz or 2310–2390 MHz frequency bands with an authorized bandwidth greater than 1 MHz, the emissions must be attenuated as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent of the authorized bandwidth plus 0.5 MHz up to and including 50 percent of the authorized bandwidth plus 1.0 MHz, the attenuation must be 60 dB, when measured in a 3.0 kHz bandwidth. The signal need not be attenuated more than 25 dB below 1 milliwatt.

(2) On any frequency removed from the assigned frequency by more than 50 percent of the authorized bandwidth plus 1.0 MHz, the attenuation must be at least 55 + 10 $\log_{10}$ pY dB, when measured in a 3.0 kHz bandwidth.

(g) The requirements of paragraphs (e) and (f) of this section apply to transmitters approved after January 1, 1977, and to all transmitters first installed after January 1, 1983.

(h) For ELTs operating on 121.500 MHz, 243.000 MHz and 406.0–406.1 MHz the mean power of any emission must be attenuated below the mean power of the transmitter (pY) as follows:

(1) When the frequency is moved from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth the attenuation must be at least 25 dB;

(2) When the frequency is removed from the assigned frequency by more than 100 percent of the authorized bandwidth the attenuation must be at least 30 dB.

(i) In case of conflict with other provisions of § 87.139, the provisions of this paragraph shall govern for aircraft earth stations. When using G1D, G1E, or G1W emissions in the 1646.5–1660.5 MHz frequency band, the emissions must be attenuated as shown below.

(1) At rated output power, while transmitting a modulated single carrier, the composite spurious and noise output shall be attenuated by at least:

Frequency (MHz)	Attenuation (dB) [1]
0.01 to 1525	−135 dB/4 kHz
1525 to 1559	−203 dB/4 kHz
1559 to 1585	−155 dB/MHz
1585 to 1605	−143 dB/MHz
1605 to 1610	−117 dB/MHz
1610 to 1610.6	−95 dB/MHz
1610.6 to 1613.8	−80 dBW/MHz [3]
1613.8 to 1614	−95 dB/MHz
1614 to 1626.5	−70 dB/4 kHz
1626.5 to 1660	−70 dB/4 kHz [2 3 4]
1660 to 1670	−49.5 dBW/20 kHz [2 3 4]
1670 to 1735	−60 dB/4 kHz
1735 to 12000	−105 dB/4 kHz
12000 to 18000	−70 dB/4 kHz

[1] These values are expressed in dB referenced to the carrier for the bandwidth indicated, and relative to the maximum emission envelope level, except where the attenuation is shown in dBW, the attenuation is expressed in terms of absolute power referenced to the bandwidth indicated.

[2] Attenuation measured within the transmit band excludes the band ±35 kHz of the carrier frequency.

[3] This level is not applicable for intermodulation products.

[4] The upper limit for the excess power for any narrow-band spurious emission (excluding intermodulation products within a 30 kHz measurement bandwidth) shall be 10 dB above the power limit in this table.

(2) The transmitter emission limit is a function of the modulation type and symbol rate (SR). Symbol Rate is expressed in symbols per second.

(3) While transmitting a single modulated signal at the rated output power of the transmitter, the emissions must be attenuated below the maximum emission level by at least:

Frequency Offset (normalized to SR)	Attenuation (dB)
±0.75 × SR	0
±1.40 × SR	20
±2.95 × SR	40

Where:

SR = Symbol Rate,
SR = 1 × channel rate for BPSK,
SR = 0.5 × channel rate for QPSK.

The mask shall be defined by drawing straight lines through the above points.

(j) When using G7D for differential GPS in the 112–118 MHz band, the amount of power during transmission under all operating conditions when measured over a 25 kHz bandwidth centered on either of the second adjacent channels shall not exceed −25 dBm and shall decrease 5 dB per octave until −52 dBm.

(k) For VHF aeronautical stations and aircraft stations operating with G1D or G7D emissions:

(1) The amount of power measured across either first adjacent 25 kHz channel shall not exceed 2 dBm.

(2) For stations first installed before January 1, 2002, the amount of power measured across either second adjacent

channel shall be less than −25 dBm and the power measured in any other adjacent 25 kHz channels shall monotonically decrease at a rate of at least 5 dB per octave to a maximum value of −52 dBm. For stations first installed on or after January 1, 2002,

(i) The amount of power measured across either second adjacent 25 kHz channel shall be less than −28 dBm;

(ii) The amount of power measured across either fourth adjacent 25 kHz channel shall be less than −38 dBm; and

(iii) From thereon the power measured in any other adjacent 25 kHz channel shall monotonically decrease at a rate of at least 5 dB per octave to a maximum value of −53 dBm.

(3) The amount of power measured over a 16 kHz channel bandwidth centered on the first adjacent 25 kHz channel shall not exceed −18 dBm.

(l)(1) For Universal Access Transceiver transmitters, the average emissions measured in a 100 kHz bandwidth must be attenuated below the maximum emission level contained within the authorized bandwidth by at least:

Frequency (MHz)	Attenuation (dB)
+/−0.5	0
+/−1.0	18
+/−2.25	50
+/−3.25	60

(2) Universal Access Transceiver transmitters with an output power of 5 Watts or more must limit their emissions by at least 43 + 10 log (P) dB on any frequency removed from the assigned frequency by more than 250% of the authorized bandwidth. Those emissions shall be measured with a bandwidth of 100 kHz. P in the above equation is the average transmitter power measured within the occupied bandwidth in Watts.

(3) Universal Access Transceiver transmitters with less than 5 Watts of output power must limit their emissions by at least 40 dB relative to the carrier peak on any frequency removed from the assigned frequency by more than 250% of the authorized bandwidth. Those emissions shall be measured with a bandwidth of 100 kHz.

[53 FR 28940, Aug. 1, 1988, as amended at 56 FR 11518, Mar. 19, 1991; 57 FR 45749, Oct. 5, 1992; 58 FR 30127, May 26, 1993; 58 FR 67695, Dec. 22, 1993; 59 FR 35269, July 11, 1994; 63 FR 36607, July 7, 1998; 64 FR 27475, May 20, 1999; 66 FR 26799, May 15, 2001; 67 FR 4676, Jan. 31, 2002; 69 FR 32881, June 14, 2004; 71 FR 70676, Dec. 6, 2006]

§ 87.141 Modulation requirements.

(a) When A3E emission is used, the modulation percentage must not exceed 100 percent. This requirement does not apply to emergency locator transmitters or survival craft transmitters.

(b) A double sideband full carrier amplitude modulated radiotelephone transmitter with rated carrier power output exceeding 10 watts must be capable of automatically preventing modulation in excess of 100 percent.

(c) If any licensed radiotelephone transmitter causes harmful interference to any authorized radio service because of excessive modulation, the Commission will require the use of the transmitter to be discontinued until it is rendered capable of automatically preventing modulation in excess of 100 percent.

(d) Single sideband transmitters must be able to operate in the following modes:

Carrier mode	Level N(dB) of the carrier with respect to peak envelope power
Full carrier (H3E)	O>N>−6.
Suppressed carrier (J3E)	Aircraft stations N<−26; Aeronautical stations N<−40.

(e) Each frequency modulated transmitter operating in the band 72.0–76.0 MHz must have a modulation limiter.

(f) Each frequency modulated transmitter equipped with a modulation limiter must have a low pass filter between the modulation limiter and the modulated stage. At audio frequencies between 3 kHz and 15 kHz, the filter must have an attenuation greater than the attenuation at 1 kHz by at least 40 $\log_{10}$ (f/3) db where ''f'' is the frequency in kilohertz. Above 15 kHz, the attenuation must be at least 28 db greater than the attenuation at 1 kHz.

(g) Except that symmetric side bands are not required, the modulation characteristics for ELTs must be in accordance with specifications contained in the Federal Aviation Administration (FAA) Technical Standard Order (TSO) Document TSO-C91a titled ''Emergency Locator Transmitter (ELT) Equipment'' dated April 29, 1985. TSO-C91a is incorporated by reference in accordance with 5 U.S.C. 552(a). TSO-C91a may be obtained from the Department of Transportation, Federal Aviation Administration, Office of Airworthiness, 800 Independence Avenue SW., Washington DC 20591.

(h) ELTs must use A3X emission and may use A3E or NON emissions on an optional basis while transmitting. Each transmission of a synthesized or recorded voice message from an ELT must be preceded by the words ''this is a recording''; transmission of A3E or NON emission must not exceed 90 seconds; and any transmission of A3E or NON emissions must be followed by at least three minutes of A3X emission.

(i) ELTs manufactured on or after October 1, 1988, must have a clearly defined carrier frequency distinct from the modulation sidebands for the mandatory emission, A3X, and, if used, the A3E or NON emissions. On 121.500 MHz at least thirty per cent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 30 Hz of the carrier frequency. On 243.000 MHz at least thirty percent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 60 Hz of the carrier frequency. Additionally, if the type of emission is changed during transmission, the carrier frequency must not shift more than plus or minus 30 Hz on 121.500 MHz and not more than plus or minus 60Hz on 243.000 MHz. The long term stability of the carrier frequency must comply with the requirements in § 87.133 of this part.

(j) Transmitters used at Aircraft earth stations must employ BPSK for transmission rates up to and including 2400 bits per second, and QPSK for higher rates.

(k) Universal Access Transceiver transmitters must use F1D modulation without phase discontinuities.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 56 FR 11518, Mar. 19, 1991; 57 FR 45749, Oct. 5, 1992; 71 FR 70676, Dec. 6, 2006]

§ 87.143 Transmitter control requirements.

(a) Each transmitter must be installed so that it is not accessible to, or capable of being operated by persons other than those authorized by the licensee.

(b) Each station must be provided with a control point at the location of the transmitting equipment, unless otherwise specifically authorized. Except for aeronautical enroute stations governed by paragraph (e) of this section, a control point is the location at which the radio operator is stationed. It is the position at which the transmitter(s) can immediately be turned off.

(c) Applicants for additional control points at aeronautical advisory (unicom) stations must specify the location of each proposed control point.

(d) Except for aeronautical enroute stations governed by paragraph (f) of this section, the control point must have the following facilities installed:

(1) A device that indicates when the transmitter is radiating or when the transmitter control circuits have been switched on. This requirement does not apply to aircraft stations;

(2) Aurally monitoring of all transmissions originating at dispatch points;

(3) A way to disconnect dispatch points from the transmitter; and

(4) A way to turn off the transmitter.

(e) A dispatch point is an operating position subordinate to the control point. Dispatch points may be installed without authorization from the Commission, and dispatch point operators are not required to be licensed.

(f) In the aeronautical enroute service, the control point for an automatically controlled enroute station is the computer facility which controls the transmitter. Any computer controlled transmitter must be equipped to automatically shut down after 3 minutes of

continuous transmission of an unmodulated carrier.

§ 87.145 Acceptability of transmitters for licensing.

(a) Each transmitter must be certificated for use in these services, except as listed in paragraph (c) of this section. However, aircraft stations which transmit on maritime mobile frequencies must use transmitters certificated for use in ship stations in accordance with part 80 of this chapter. Certification under part 80 is not required for aircraft earth stations transmitting on maritime mobile-satellite frequencies. Such stations must be certificated under part 87.

(b) Some radio equipment installed on air carrier aircraft must meet the requirements of the Commission and the requirements of the FAA. The FAA requirements may be obtained from the FAA, Aircraft Maintenance Division, 800 Independence Ave., SW., Washington, DC 20591.

(c) The equipment listed below is exempted from certification. The operation of transmitters which have not been certificated must not result in harmful interference due to the failure of those transmitters to comply with technical standards of this subpart.

(1) Flight test station transmitters for limited periods where justified.

(2) U.S. Government transmitters furnished in the performance of a U.S. Government contract if the use of certificated equipment would increase the cost of the contract or if the transmitter will be incorporated in the finished product. However, such equipment must meet the technical standards contained in this subpart.

(3) ELTs verified in accordance with § 87.147(e).

(4) Signal generators when used as radionavigation land test stations (MTF).

(d) Aircraft earth stations must correct their transmit frequencies for Doppler effect relative to the satellite. The transmitted signal may not deviate more than 335 Hz from the desired transmit frequency. (This is a root sum square error which assumes zero error for the received ground earth station signal and includes the AES transmit/receive frequency reference error and the AES automatic frequency control residual errors.) The applicant must attest that the equipment provides adequate Doppler effect compensation and where applicable, that measurements have been made that demonstrate compliance. Submission of data demonstrating compliance is not required unless requested by the Commission.

[63 FR 36607, July 7, 1998, as amended at 69 FR 32881, June 14, 2004]

§ 87.147 Authorization of equipment.

(a) Certification may be requested by following the procedures in part 2 of this chapter. Aircraft transmitters must meet the requirements over an ambient temperature range of −20 degrees to +50 degrees Celsius.

(b) ELTs manufactured after October 1, 1988, must meet the output power characteristics contained in § 87.141(i) when tested in accordance with the Signal Enhancement Test contained in subpart N, part 2 of this chapter. A report of the measurements must be submitted with each application for certification. ELTs that meet the output power characteristics of the section must have a permanent label prominently displayed on the outer casing state, ''Meets FCC Rule for improved satellite detection.'' This label, however, must not be placed on the equipment without authorization to do so by the Commission. Application for such authorization may be made either by submission of a new application for certification accompanied by the required fee and all information and test data required by parts 2 and 87 of this chapter or, for ELTs approved prior to October 1, 1988, a letter requesting such authorization, including appropriate test data and a showing that all units produced under the original equipment authorization comply with the requirements of this paragraph without change to the original circuitry.

(c) An applicant for a station license may request certification for an individual transmitter by following the procedure in part 2 of this chapter. Such a transmitter will be individually certified and so noted on the station license.

(d) An applicant for certification of equipment intended for transmission in any of the frequency bands listed in

paragraph (d)(3) of this section must notify the FAA of the filing of a certification application. The letter of notification must be mailed to: FAA, Office of Spectrum Policy and Management, ASR–1, 800 Independence Ave., SW., Washington, DC 20591 prior to the filing of the application with the Commission.

(1) The notification must describe the equipment, give the manufacturer's identification, antenna characteristics, rated output power, emission type and characteristics, the frequency or frequencies of operation, and essential receiver characteristics if protection is required.

(2) The certification application must include a copy of the notification letter to the FAA. The Commission will not act until it receives the FAA's determination regarding whether it objects to the application for equipment authorization. The FAA should mail its determination to: Office of Engineering and Technology Laboratory, Authorization and Evaluation Division, 7435 Oakland Mills Rd., Columbia, MD 21046. The Commission will consider the FAA determination before taking final action on the application.

(3) The frequency bands are as follows:

90–110 kHz
190–285 kHz
325–435 kHz
74.800 MHz to 75.200 MHz
108.000 MHz to 137.000 MHz
328.600 MHz to 335.400 MHz
960.000 MHz to 1215.000 MHz
1545.000 MHz to 1626.500 MHz
1646.500 MHz to 1660.500 MHz
5000.000 MHz to 5250.000 MHz
14.000 GHz to 14.400 GHz
15.400 GHz to 15.700 GHz
24.250 GHz to 25.250 GHz
31.800 GHz to 33.400 GHz

(e) Verification reports for ELTs capable of operating on the frequency 406.0–406.1 MHz must include sufficient documentation to show that the ELT meets the requirements of § 87.199(a). A letter notifying the FAA of the ELT verification must be mailed to: FAA, Office of Spectrum Policy and Management, ASR–1, 800 Independence Avenue SW., Washington, DC 20591.

(f) Certification may be requested for equipment that has the capability to transmit in the 138–144 MHz, 148–149.9 MHz, or 150.5–150.8 MHz bands as well as frequency bands set forth in § 87.173. The Commission will only certify this equipment for use in the bands regulated by this part.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 56 FR 11518, Mar. 19, 1991; 57 FR 45750, Oct. 5, 1992; 58 FR 30127, May 26, 1993; 58 FR 67696, Dec. 22, 1993; 63 FR 36608, July 7, 1998; 69 FR 32881, June 14, 2004]

§ 87.149 Special requirements for automatic link establishment (ALE).

Brief signalling for the purposes of measuring the quality of a radio channel and thereafter establishing communication shall be permitted within the 2 MHz–30 MHz band. Public coast stations licensed under part 80 of this chapter providing high seas service are authorized by rule to use such signalling under the following conditions:

(a) The transmitter power shall not exceed 100 W ERP;

(b) Transmissions must sweep linearly in frequency at a rate of at least 60 kHz per second, occupying any 3 kHz bandwidth for less than 50 milliseconds;

(c) The transmitter shall scan the band no more than four times per hour;

(d) Transmissions within 6 kHz of the following protected frequencies and frequency bands must not exceed 10 μW peak ERP:

(1) Protected frequencies (kHz)

2091.0	4188.0	6312.0	12290.0	16420.0
2174.5	4207.5	8257.0	12392.0	16522.0
2182.0	5000.0	8291.0	12520.0	16695.0
2187.5	5167.5	8357.5	12563.0	16750.0
2500.0	5680.0	8364.0	12577.0	16804.5
3023.0	6215.0	8375.0	15000.0	20000.0
4000.0	6268.0	8414.5	16000.0	25000.0
4177.5	6282.0	10000.0		

(2) Protected bands (kHz)

4125.0–4128.0
8376.25–8386.75
13360.0–13410.0
25500.0–25670.0

(e) The instantaneous signal, which refers to the peak power that would be measured with the frequency sweep stopped, along with spurious emissions generated from the sweeping signal, must be attenuated below the peak carrier power (in watts) as follows:

(1) On any frequency more than 5 Hz from the instantaneous carrier frequency, at least 3 dB;

(2) On any frequency more than 250 Hz from the instantaneous carrier frequency, at least 40 dB; and

(3) On any frequency more than 7.5 kHz from the instantaneous carrier frequency, at least 43 + $10\log_{10}$ (peak power in watts) db.

[62 FR 40308, July 28, 1997]

§ 87.151 Special requirements for differential GPS receivers.

(a) The receiver shall achieve a message failure rate less than or equal to one failed message per 1000 full-length (222 bytes) application data messages, while operating over a range from −87 dBm to −1 dBm, provided that the variation in the average received signal power between successive bursts in a given time slot shall not exceed 40 dB. Failed messages include those lost by the VHF data receiver system or which do not pass the cyclic redundancy check (CRC) after application of the forward error correction (FEC).

(b) The aircraft receiving antenna can be horizontally or vertically polarized. Due to the difference in the signal strength of horizontally and vertically polarized components of the broadcast signal, the total aircraft implementation loss is limited to 15 dB for horizontally polarized receiving antennas and 11 dB for vertically polarized receiving antennas.

(c) *Desensitization*. The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of VHF-FM broadcast signals in accord with following tables.

(1) Maximum levels of undesired signals.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
50 kHz up to 88 MHz	−13
88 MHz–107.900 MHz	[see paragraph (c)(2)]
108.000 MHz–117.975 MHz	excluded
118MHz	−44
118.025 MHz	−41
118.050 MHz up to 1660.5 MHz.	−13

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(2) Desensitization frequency and power requirements for the frequencies 108.025 MHz to 111.975 MHz.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz ≤f ≤102 MHz	15
104 MHz	10
106 MHz	5
107.9 MHz	−10

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(3) Desensitization frequency and power requirements for the frequencies 112.00 MHz to 117.975 MHz.

Frequency [1]	Maximum level of undesired signal at the receiver input (dBm)
88 MHz ≤f ≤104 MHz	15
106 MHz	10
107 MHz	5
107.9 MHz	0

[1] The relationship is linear between single adjacent points designated by the above frequencies.

(d) *Intermodulation immunity*. The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of interference from two-signal, third order intermodulation products of two VHF-FM broadcast signals having levels in accordance with the following:

(1) $2N_1 + N_2 + 72 \leq 0$ for VHF-FM sound broadcasting signals in the range 107.7–108 MHz; and

(2) $2N_1 + N_2 + 3\ (24 - 20\log \text{delta } f/0.4) \leq 0$ for VHF-FM sound broadcasting signals below 107.7 MHz, where the frequencies of the two VHF-FM sound broadcasting signals produce, within the receiver, a two signal, third-order intermodulation product on the desired VDB frequency.

(3) In the formulas in paragraphs (d)(1) and (d)(2) of this section, N_1 and N_2 are the levels (dBm) of the two VHF FM sound broadcasting signals at the VHF data broadcast (VDB) receiver input. Neither level shall exceed the desensitization criteria set forth in paragraph (c) of this section. Delta f = 108.1 − f_I, where f_I is the frequency of N_1, the VHF FM sound broadcasting signal closer to 108.1 MHz.

[69 FR 32881, June 14, 2004]

Subpart E—Frequencies

§ 87.169 Scope.

This subpart contains class of station symbols and a frequency table which lists assignable frequencies. Frequencies in the Aviation Services will transmit communications for the safe, expeditious, and economic operation of aircraft and the protection of life and property in the air. Each class of land station may communicate in accordance with the particular sections of this part which govern these classes. Land stations in the Aviation Services in Alaska may transmit messages concerning sickness, death, weather, ice conditions or other matters relating to safety of life and property if there is no other established means of communications between the points in question and no charge is made for the communications service.

[69 FR 32882, June 14, 2004]

§ 87.171 Class of station symbols.

The two or three letter symbols for the classes of station in the aviation services are:

Symbol and class of station

AX—Aeronautical fixed
AVW—Audio visual warning systems
AXO—Aeronautical operational fixed
DGP—Differential GPS
DLT—Aircraft data link land test
FA—Aeronautical land (unspecified)
FAC—Airport control tower
FAE—Aeronautical enroute
FAM—Aeronautical multicom
FAR—Aeronautical search and rescue
FAS—Aviation support
FAT—Flight test
FAU—Aeronautical advisory (unicom)
FAW—Automatic weather observation
GCO—Ground Communication Outlet
MA—Aircraft (Air carrier and Private)
MA1—Air carrier aircraft only
MA2—Private aircraft only
MOU—Aeronautical utility mobile
MRT—ELT test
RCO—Remote Communications Outlet
RL—Radionavigation land (unspecified)
RLA—Marker beacon
RLB—Radiobeacon
RLD—RADAR/TEST
RLG—Glide path
RLL—Localizer
RLO—VHF omni-range
RLS—Surveillance radar
RLT—Radionavigation land test
RLW—Microwave landing system
RNV—Radio Navigation Land/DME
RPC—Ramp Control
TJ—Aircraft earth station in the Aeronautical Mobile-Satellite Service
UAT—Universal Access Transceiver

[53 FR 28940, Aug. 1, 1988, as amended at 57 FR 45750, Oct. 5, 1992; 64 FR 27475, May 20, 1999; 69 FR 32882, June 14, 2004; 71 FR 70676, Dec. 6, 2006; 76 FR 17351, Mar. 29, 2011; 78 FR 61206, Oct. 3, 2013]

§ 87.173 Frequencies.

(a) The table in paragraph (b) of this section lists assignable carrier frequencies or frequency bands.

(1) The single letter symbol appearing in the ''Subpart'' column indicates the subpart of this part which contains additional applicable regulations.

(2) The two or three letter symbol appearing in the ''Class of Station'' column indicates the class of station to which the frequency is assignable.

(b) Frequency table:

Frequency or frequency band	Subpart	Class of station	Remarks
90–110 kHz	Q	RL	LORAN "C".
190–285 kHz	Q	RLB	Radiobeacons.
200–285 kHz	O	FAC	Air traffic control.
325–405 kHz	O	FAC	Air traffic control.
325–435 kHz	Q	RLB	Radiobeacons.
410.0 kHz	F	MA	International direction-finding for use outside of United States.
457.0 kHz	F	MA	Working frequency for aircraft on over-water flights.
500.0 kHz	F	MA	International calling and distress frequency for ships and aircraft on over-water flights.
510–535 kHz	Q	RLB	Radiobeacons.
2182.0 kHz	F	MA	International distress and calling.
2648.0 kHz	I	AX	Alaska station.
2850.0–3025.0 kHz	I	MA, FAE	International HF.
2851.0 kHz	I, J	MA, FAE, FAT	International HF; Flight Test.
2866.0 kHz	I	MA, FAE	Domestic HF; (Alaska).
2875.0 kHz	I	MA, FAE	Domestic HF.
2878.0 kHz	I	MA1, FAE	Domestic HF; International HF.

Frequency or frequency band	Subpart	Class of station	Remarks
2911.0 kHz	I	MA, FAE	Domestic HF.
2956.0 kHz	I	MA, FAE	Domestic HF.
3004.0 kHz	I, J	MA, FAE, FAT	International HF; Flight Test.
3019.0 kHz	I	MA1, FAE	Domestic HF; International HF.
3023.0 kHz	F, M, O	MA1, FAR, FAC	Search and rescue communications.
3281.0 kHz	K	MA, FAS	Lighter-than-air craft and aeronautical stations serving lighter-than-air craft.
3400.0–3500.0 kHz	I	MA, FAE	International HF.
3434.0 kHz	I	MA1, FAE	Domestic HF.
3443.0 kHz	J	MA, FAT	Flight Test.
3449.0 kHz	I	MA, FAE	Domestic HF.
3470.0 kHz	I	MA, FAE	Domestic HF; International HF.
4125.0 kHz	F	MA	Distress and safety with ships and coast stations.
4550.0 kHz	I	AX	Gulf of Mexico.
4645.0 kHz	I	AX	Alaska.
4650.0–4700.0 kHz	I	MA, FAE	International HF.
4672.0 kHz	I	MA1, FAE	Domestic HF.
4947.5 kHz	I	AX	Alaska.
5036.0 kHz	I	AX	Gulf of Mexico.
5122.5 kHz	I	AX	Alaska.
5167.5 kHz	I	FA	Alaska emergency.
5310.0 kHz	I	AX	Alaska.
5450.0–5680.0 kHz	I	MA, FAE	International HF.
5451.0 kHz	J	MA, FAT	Flight Test.
5463.0 kHz	I	MA1, FAE	Domestic HF.
5469.0 kHz	J	MA, FAT	Flight Test.
5472.0 kHz	I	MA, FAE	Domestic HF.
5484.0 kHz	I	MA, FAE	Domestic HF.
5490.0 kHz	I	MA, FAE	Domestic HF.
5496.0 kHz	I	MA, FAE	Domestic HF.
5508.0 kHz	I	MA1, FAE	Domestic HF.
5571.0 kHz	J	MA, FAT	Flight Test.
5631.0 kHz	I	MA, FAE	Domestic HF.
5680.0 kHz	F, M, O	MA1, FAC, FAR	Search and rescue communications.
5887.5 kHz	I	AX	Alaska.
6525.0–6685.0 kHz	I	MA, FAE	International HF.
6550.0 kHz	J	MA, FAT	Flight Test.
6580.0 kHz	I	MA, FAE	Domestic HF.
6604.0 kHz	I	MA, FAE	Domestic HF.
8015.0 kHz	I	AX	Alaska.
8364.0 kHz	F	MA	Search and rescue communications.
8815.0–8965.0 kHz	I	MA, FAE	International HF.
8822.0 kHz	J	MA, FAT	Flight Test.
8855.0 kHz	I	MA, FAE	Domestic HF; international HF.
8876.0 kHz	I	MA, FAE	Domestic HF.
10005.0–10100.0 kHz	I	MA, FAE	International HF.
10045.0 kHz	J	MA, FAT	Flight Test.
10066.0 kHz	I	MA, FAE	Domestic HF; international HF.
11275.0–11400.0 kHz	I	MA, FAE	International HF.
11288.0 kHz	J	MA, FAT	Flight Test.
11306.0 kHz	J	MA, FAT	Flight Test.
11357.0 kHz	I	MA, FAE	Domestic HF.
11363.0 kHz	I	MA, FAE	Domestic HF.
13260.0–13360.0 kHz	I	MA, FAE	International HF.
13312.0 kHz	I, J	MA, FAE, FAT	International HF; Flight Test.
17900.0–17970.0 kHz	I	MA, FAE	International HF.
17964.0 kHz	J	MA, FAT	Flight Test.
21924.0–22000.0 kHz	I	MA, FAE	International HF.
21931.0 kHz	J	MA, FAT	Flight Test.
72.02–72.98 MHz	P	FA, AXO	Operational fixed.
75.000 MHz	Q	RLA	Marker beacon.
75.42–75.98 MHz	P	FA, AXO	Operational fixed.
108.000 MHz	Q	RLT	
108.000–117.950 MHz.	Q	RLO	VHF omni-range.
108.000–117.975 MHz.	Q	DGP	Differential GPS.
108.050 MHz	Q	RLT	
108.100–111.950 MHz.	Q	RLL	ILS Localizer.
108.100 MHz	Q	RLT	
108.150 MHz	Q	RLT	
118.000–121.400 MHz.	O, S	MA, FAC, FAW, GCO RCO, RPC	25 kHz channel spacing

Frequency or frequency band	Subpart	Class of station	Remarks
121.500 MHz	G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC, FAM.	Emergency and distress.
121.600–121.925 MHz.	O, L, Q	MA, FAC, MOU, RLT, GCO, RCO, RPC.	25 kHz channel spacing.
121.950 MHz	K	FAS	
121.975 MHz	F, S	MA2, FAW, FAC, MOU.	Air traffic control operations.
122.000 MHz	F	MA, FAC, MOU	Air carrier and private aircraft enroute flight advisory service provided by FAA.
122.025 MHz	F, S	MA2, FAW, FAC, MOU.	Air traffic control operations.
122.050 MHz	F	MA, FAC, MOU	Air traffic control operations.
122.075 MHz	F, S	MA2, FAW, FAC, MOU.	Air traffic control operations.
122.100 MHz	F, O	MA, FAC, MOU	Air traffic control operations.
122.125–122.675 MHz.	F	MA2, FAC, MOU	Air traffic control operations; 25 kHz spacing.
122.700 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
122.725 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
122.750 MHz	F, Q	MA2, AVW	Private fixed wing aircraft air-to-air communications.
122.775 MHz	K	MA, FAS	
122.800 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
122.825 MHz	I	MA, FAE	Domestic VHF.
122.850 MHz	H, K, Q	MA, FAM, FAS, AVW.	
122.875 MHz	I	MA, FAE	Domestic VHF.
122.900 MHz	F, H, L, M, Q	MA, FAR, FAM, MOU, AVW.	
122.925 MHz	H	MA2, FAM.	
122.950 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with control tower; Aeronautical utility stations.
122.975 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
123.000 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
123.025 MHz	F, Q	MA2, AVW	Helicopter air-to-air communications; Air traffic control operations.
123.050 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
123.075 MHz	G, L, Q	MA, FAU, MOU, AVW	Unicom at airports with no control tower; Aeronautical utility stations.
123.100 MHz	M, O	MA, FAC, FAR	
123.125 MHz	J	MA, FAT	Itinerant.
123.150 MHz	J	MA, FAT	Itinerant.
123.175 MHz	J	MA, FAT	Itinerant.
123.200 MHz	J	MA, FAT	
123.225 MHz	J	MA, FAT	
123.250 MHz	J	MA, FAT	
123.275 MHz	J	MA, FAT	
123.300 MHz	K, Q	MA, FAS, AVW.	
123.325 MHz	J	MA, FAT	
123.350 MHz	J	MA, FAT	
123.375 MHz	J	MA, FAT	
123.400 MHz	J	MA, FAT	Itinerant.
123.425 MHz	J	MA, FAT	
123.450 MHz	J	MA, FAT	
123.475 MHz	J	MA, FAT	
123.500 MHz	K, Q	MA, FAS, AVW.	
123.525 MHz	J	MA, FAT	
123.550 MHz	J	MA, FAT	
123.575 MHz	J	MA, FAT	
123.6–128.8 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC.	25 kHz channel spacing.
128.825–132.000 MHz.	I	MA, FAE	Domestic VHF.
131.450 MHz	I	DLT.	
131.550 MHz	I	DLT.	
131.725 MHz	I	DLT.	
131.825 MHz	I	DLT.	
132.025–135.975 MHz.	O, S	MA, FAC, FAW, GCO RCO RPC.	25 kHz channel spacing.

Frequency or frequency band	Subpart	Class of station	Remarks
136.000–136.400 MHz.	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations; 25 kHz channel spacing.
136.425 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.450 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.475 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.500–136.875 MHz.	I	MA, FAE	Domestic VHF; 25 kHz channel spacing.
136.850 MHz	I	DLT.	
136.900 MHz	I	MA, FAE, DLT	International and Domestic VHF.
136.925 MHz	I	MA, FAE, DLT	International and Domestic VHF.
136.950 MHz	I	MA, FAE, DLT	International and Domestic VHF.
136.975 MHz	I	MA, FAE, DLT	International and Domestic VHF.
156.300 MHz	F	MA	For communications with ship stations under specific conditions.
156.375 MHz	F	MA	For communications with ship stations under specific conditions; Not authorized in New Orleans Vessel traffic service area.
156.400 MHz	F	MA	For communications with ship stations under specific conditions.
156.425 MHz	F	MA	For communications with ship stations under specific conditions.
156.450 MHz	F	MA	For communications with ship stations under specific conditions.
156.625 MHz	F	MA	For communications with ship stations under specific conditions.
156.800 MHz	F	MA	Distress, safety and calling frequency; For communications with ship stations under specific conditions.
156.900 MHz	F	MA	For communications with ship stations under specific conditions.
157.425 MHz	F	MA	For communications with commercial fishing vessels under specific conditions except in Great Lakes and St. Lawrence Seaway Areas.
243.000 MHz	F	MA	Emergency and distress frequency for use of survival craft and emergency locator transmitters.
328.600–335.400 MHz.	Q	RLG	ILS glide path.
334.550 MHz	Q	RLT	
334.700 MHz	Q	RLT	
406.0–406.1 MHz	F, G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC, FAM.	Emergency and distress.
960–1215 MHz	F, Q	MA, RL, RNV	Electronic aids to air navigation.
978.000 MHz	F, L, Q	MA, MOU, UAT	Universal Access Transceivers.
	UAT	.	
	Q	RLT	
979.000 MHz	Q	RLT	
1030.000 MHz	Q	RLT.	
1090.000 MHz	L	MOU, RLT	Vehicle Squitter.
1104.000 MHz	Q	RLT	
1300–1350 MHz	F, Q	MA, RLS	Surveillance radars and transponders.
1435–1525 MHz	F, J	MA, FAT	Aeronautical telemetry and telecommand operations.
1559–1610 MHz	Q	DGP	Differential GPS.
1559–1626.5 MHz	F, Q	MA, RL	Aeronautical radionavigation.
1646.5–1660.5 MHz	F	TJ	Aeronautical Mobile-Satellite (R).
2310–2320 MHz	J	MA, FAT	Aeronautical telemetry and telecommand operations.
2345–2395 MHz	J	MA, FAT	Aeronautical telemetry and telecommand operations.
2700–2900 MHz	Q	RLS, RLD	Airport surveillance and weather radar.
4200–4400 MHz	F	MA	Radio altimeters.
5000–5250 MHz	Q	MA, RLW	Microwave landing systems.
5031.000 MHz	Q	RLT	
5350–5470 MHz	F	MA	Airborne radars and associated airborne beacons.
8750–8850 MHz	F	MA	Airborne doppler radar.
9000–9200 MHz	Q	RLS, RLD	Land-based radar.
9300–9500 MHz	F, Q	MA	Airborne radars and associated airborne beacons.
13250–13400 MHz	F	MA	Airborne doppler radar.
15400–15700 MHz	Q	RL	Aeronautical radionavigation.
24750–25050 MHz	F, Q	MA, RL	Aeronautical radionavigation.
32300–33400 MHz	F, Q	MA, RL	Aeronautical radionavigation.

[53 FR 28940, Aug. 1, 1988]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 87.183, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

Subpart F—Aircraft Stations

§ 87.185 Scope of service.

(a) Aircraft stations must limit their communications to the necessities of safe, efficient, and economic operation of aircraft and the protection of life and property in the air, except as otherwise specifically provided in this part. Contact with an aeronautical land station must only be attempted when the aircraft is within the serivce area of the land station. however, aircraft stations may transmit advisory information on air traffic control, unicom or aeronautical multicom frequencies for the benefit and use of other stations monitoring these frequencies in accordance with FAA recommended traffic advisory practices.

(b) Aircraft public correspondence service must be made available to all persons without discrimination and on reasonable demand, and must communicate without discrimination with any public coast station or mobile-satellite earth station authorized to provide aircraft public correspondence service.

(c) Aircraft public correspondence service on maritime mobile frequencies may only be carried by aircraft stations licensed to use maritime mobile frequencies and must follow the rules for public correspondence in part 80.

(d) Aircraft public correspondence service on Aeronautical Mobile-Satellite (R) Service frequencies may only be carried on aircraft earth stations licensed to use Aeronautical Mobile-Satellite (R) frequencies and are subject to the rules for public correspondence in this part. Aircraft public correspondence service on Maritime Mobile-Satellite Service frequencies may only be carried by aircraft earth stations licensed to use Maritime Mobile-Satellite frequencies and are subject to the rules for public correspondence in part 80.

[53 FR 28940, Aug. 1, 1988, as amended at 57 FR 45750, Oct. 5, 1992]

§ 87.187 Frequencies.

(a) Frequencies used for air-ground Communications are listed in subpart E. Aircraft stations may use frequencies assigned to Government or non-Government aeronautical stations or radionavigation land stations if the communications are within the aeronautical or radionavigation land station scope of service.

(b) 410 kHz is the international direction-finding frequency for use outside the continental United States.

(c) 457 kHz is an authorized working frequency for flights over the high seas.

(d) 500 kHz an international calling and distress frequency for aircraft on flights over the high seas. Except for distress, urgency or safety messages an aircraft station must not transmit on 500 kHz during the silence periods for three minutes twice each hour beginning at x h. 15 and x h.45 Coordinated Universal Time (u.t.c.).

(e) The frequency 2182 khz is an international distress and calling frequency for use by ship, aircraft and survival craft stations. Aircraft stations must use J3E emission when operating on 2182 kHz and communicating with domestic public and private coast stations. The emission H3E may be used when communicating with foreign coast and ship stations.

(f) The frequencies 3023 kHz, 5680 kHz, 122.900 MHz and 123.100 MHz are authorized for use by aircraft engaged in seach and rescue activities in accordance with subpart M. These frequencies may be used for air-air and air-ground communications.

(g) The frequency 4125 kHz may be used for distress and safety communications between aircraft and ship and coast maritime mobile stations.

(h) The frequency 8364.0 kHz is authorized for use of survival craft for search and rescue communications with stations in the maritime mobile service.

(i) The frequencies in the band 121.975–122.675 MHz are authorized for

use by private aircraft of air traffic control operations.

(1) The frequencies 122.00 and 122.050 MHz are authorized for use by air carrier and private aircraft stations for enroute flight advisory service (EFAS) provided by the FAA;

(2) The frequency 122.100 MHz is authorized for use by air carrier aircraft stations for air traffic control operations at locations in Alaska where other frequencies are not available for air traffic control.

(j) The frequency 122.750 MHz is authoried for use by private fixed wing aircraft for air-air communications. The frequency 123.025 MHz is authorized for use by helicopters for air-air Communications.

(k) The frequencies 121.500 MHz and 243.000 MHz are emergency and distress frequences available for use by survival craft stations, emergency locator transmitters and equipment used for survival pruposes. Use of 121.500 MHz and 243.00 MHz shall be limited to transmission of signals and communications for survival purposes. Type A2A, A3E or A3N emission may be employed, except in the case of emergency locator transmitters where A3E, A3X and NON are permitted.

(l) The frequencies 156.300, 156.375, 156,400, 156,425, 156.450, 156.625, 156.800 156.900 and 157.425 MHz may be used by aircraft stations to communicate with ship stations in accordance with part 80 and the following conditions:

(1) The altitude of aircraft stations must not exceed 300 meters (1,000 feet), except for reconnaissance aircraft participating in icebreaking operations where an altitude of 450 meters (1,500 feet) is allowed;

(2) Aircraft station transmitter power must not exceed five watts;

(3) The frequency 156.300 MHz may be used for safety purposes only. The frequency 156.800 MHz may be used for distress, safety and calling purposes only.

(4) Except in the Great Lakes and along the St. Lawrence Seaway the frequency 157.425 MHz is available for communications with commerical fishing vessels.

(5) The frequency 156.375 MHz cannot be used in the New Orleans, LA, VTS protection area. No harmful interference shall be caused to the VTS.

(m) The frequency 406.0–406.1 MHz is an emergency and distress frequency available for use by emergency locator transmitters. Use of this frequency must be limited to transmission of distress and safety communications.

(n) The frequency band 960–1215 MHz is for the use of airborne electronic aids to air navigation and directly associated land stations.

(o) The frequency band 1300-1350 MHz is for surveillance radar stations and associated airborne transponders.

(p) The frequency band 1435–1525 MHz is available on a primary basis and the frequency band 1525–1535 MHz is available on a secondary basis for telemetry and telecommand associated with the flight testing of aircraft, missiles, or related major components. This includes launching into space, reentry into the earth's atmosphere and incidental orbiting prior to reentry. The following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, and 1524.5 MHz. *See* § 87.303(d).

NOTE TO PARAGRAPH (p): Aeronautical telemetry operations must protect mobile-satellite operations in the 1525–2535 MHz band and maritime mobile-satellite operations in the 1530–1535 MHz band.

(q) The frequencies in the band 1545.000–1559.000 MHz and 1646.500–1660.500 MHz are authorized for use by the Aeronautical Mobile-Satellite (R) Service. The use of the bands 1544.000–1545.000 MHz (space-to-Earth) and 1645.500–1646.500 MHz (Earth-to-space) by the Mobile-Satellite Service is limited to distress and safety operations. In the frequency bands 1549.500–1558.500 MHz and 1651.000–1660.000 MHz, the Aeronautical Mobile-Satellite (R) requirements that cannot be accommodated in the 1545.000–1549.500 MHz, 1558.500–1559.000 MHz, 1646.500–1651.000 MHz, and 1660.000–1660.500 MHz bands shall have priority access with real-time preemptive capability for communications in the Mobile-Satellite Service. Systems not interoperable with the Aeronautical Mobile-Satellite (R) Service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the Mobile-Satellite Service.

(r) The frequency band 1559–1626.5 MHz is available for airborne electronic aids to air navigation and any associated land station.

(s) The frequency band 4200–4400 MHz is reserved exclusively for radio altimeters.

(t) The frequency band 5350–5470 MHz in the aeronautical radionavigation service is limited to airborne radars and associated airborne beacons.

(u) The frequency band 8750–8850 MHz is available for use by airborne doppler radars in the aeronautical radionavigation service only on the condition that they must accept any interference which may be experienced from stations in the radiolocation service in the band 8500–10,000 MHz.

(v) The frequency band 9300–9500 MHz is limited to airborne radars and associated airborne beacons.

(w) The frequency band 13250–13400 MHz available for airborne doppler radar use.

(x) The frequency bands 24450–24650 MHz, 24750–25050 MHz and 32300–33400 MHz are available for airborne radionavigation devices.

(y) Brief keyed RF signals (keying the transmitter by momentarily depressing the microphone ''push-to-talk'' button) may be transmitted from aircraft for the control of automated unicoms on the unicom frequencies listed in paragraph (y)(3) of this section, or for the control of airport lights on the following frequencies:

(1) Any air traffic control frequency listed in § 87.421.

(2) FAA Flight Service Station frequencies 121.975–122.675 MHz.

(3) The unicom frequencies 122.700, 122.725, 122.800, 122.950, 122.975, 123.000, 123.050 and 123.075 MHz.

(4) Aviation support station frequencies listed in § 87.323(b): 121.950, 123.300 and 123.500 MHz if the frequency is assigned to a station at the airport and no harmful interference is caused to voice communications. If no such station is located at the concerned airport, aircraft may use one of the aviation support station frequencies for the control of airport lights.

(5) The frequency 122.9 MHz when it is used as the common traffic advisory frequency at the concerned airport.

(z) Frequencies for public correspondence between ships and public coast stations in the maritime mobile service (except frequencies in the 156–174 MHz band) and coast earth stations in the maritime mobile-satellite service are available for public correspondence between aircraft and public coast stations and coast earth stations, respectively. The transmission of public correspondence from aircraft must not cause interference to maritime communications.

(aa) Frequencies in the 454.675–459.975 MHz band are available in the Public Mobile Radio Service (part 22) for use on board aircraft for communications with land mobile stations which are interconnected to the nationwide public telephone system.

(bb) The frequencies 121.950 MHz, 122.850 MHz and 127.050[1] MHz are authorized for air-to-air use for aircraft up to and including 3 km (10,000 ft) mean sea level in the vicinity of Grand Canyon National Park in Arizona within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

36–27–59.9 N. Lat; 112–47–2.7 W. Long.
36–27–59.9 N. Lat; 112–48–2.7 W. Long.
35–50–00.0 N. Lat; 112–48–2.7 W. Long.
35–43–00.0 N. Lat; 112–47–2.7 W. Long.

(cc) The frequency 120.650 MHz[1] is authorized for air-to-air use for aircraft up to and including 3 km (10,000 ft) mean sea level within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

35–59–44.9 N. Lat; 114–51–48.0 W. Long.
36–09–29.9 N. Lat; 114–50–3.0 W. Long.
36–09–29.9 N. Lat; 114–02–57.9 W. Long.
35–54–45.0 N. Lat; 113–48–47.8 W. Long.

(dd) The frequencies 136.425, 136.450, and 136.475 MHz are designated for flight information services—broadcast (FIS–B) and may not be used by aircraft for transmission.

[1] Until further notice this frequency is available for air-to-air use as described in the Grand Canyon vicinity. Availability is a result of the FAA's assignment of this frequency. If the FAA reassigns this frequency the Commission may require air-to-air use to cease.

(ee) The frequency 121.95 MHz is authorized for air-to-ground and air-to-air communications for aircraft up to 13000 feet above mean sea level (AMSL) within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

32–35–00 N. Lat.; 117–12–00 W. Long.
32–42–00 N. Lat.; 116–56–00 W. Long.
32–41–00 N. Lat.; 116–41–00 W. Long.
32–35–00 N. Lat.; 116–38–00 W. Long.
32–31–00 N. Lat.; 117–11–00 W. Long.

(ff) The frequency 978 MHz is authorized for Universal Access Transceiver data transmission.

(gg) (1) The frequency 120.650 MHz is authorized for air-to-air communications for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Maui.

(2) The frequency 121.950 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Molokai.

(3) The frequency 122.850 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Oahu.

(4) The frequency 122.850 MHz is authorized for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Hawaii when aircraft are south and east of the 215 degree radial of very high frequency omni-directional radio range of Hilo International Airport.

(5) The frequency 127.050 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the shoreline of the Hawaiian Island of Hawaii when aircraft are north and west of the 215 degree radial of very high frequency omni-directional radio range of Hilo International Airport.

(6) The frequency 127.050 MHz is authorized for air-to-air use for aircraft over and within five nautical miles of the Hawaiian Island of Kauai.

(hh) (1) The frequency 121.95 MHz is authorized for air-to-air communications for aircraft within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

33–46–00 N. Lat.; 118–27–00 W. Long.
33–47–00 N. Lat.; 118–12–00 W. Long.
33–40–00 N. Lat.; 118–00–00 W. Long.
33–35–00 N. Lat.; 118–08–00 W. Long.
34–00–00 N. Lat.; 118–26–00 W. Long.

(2) The frequency 122.775 MHz is authorized for air-to-air communications for aircraft within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

34–22–00 N. Lat.; 118–30–00 W. Long.
34–35–00 N. Lat.; 118–15–00 W. Long.
34–27–00 N. Lat.; 118–15–00 W. Long.
34–16–00 N. Lat.; 118–35–00 W. Long.
34–06–00 N. Lat.; 118–35–00 W. Long.
34–05–00 N. Lat.; 118–50–00 W. Long.

(3) The frequency 123.30 MHz is authorized for air-to-air communications for aircraft within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

34–08–00 N. Lat.; 118–00–00 W. Long.
34–10–00 N. Lat.; 117–08–00 W. Long.
34–00–00 N. Lat.; 117–08–00 W. Long.
33–53–00 N. Lat.; 117–42–00 W. Long.
33–58–00 N. Lat.; 118–00–00 W. Long.

(4) The frequency 123.50 MHz is authorized for air-to-air communications for aircraft within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

33–53–00 N. Lat.; 117–37–00 W. Long.
34–00–00 N. Lat.; 117–15–00 W. Long.
34–00–00 N. Lat.; 117–07–00 W. Long.
33–28–00 N. Lat.; 116–55–00 W. Long.
33–27–00 N. Lat.; 117–12–00 W. Long.

(5) The frequency 123.50 MHz is authorized for air-to-air communications for aircraft within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

33–50–00 N. Lat.; 117–48–00 W. Long.
33–51–00 N. Lat.; 117–41–00 W. Long.
33–38–00 N. Lat.; 117–30–00 W. Long.
33–30–00 N. Lat.; 117–30–00 W. Long.
33–30–00 N. Lat.; 117–49–00 W. Long.

[53 FR 28940, Aug. 1, 1988]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 87.187, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 87.189 Requirements for public correspondence equipment and operations.

(a) Transmitters used for public correspondence by aircraft stations in the maritime mobile frequency bands must be authorized by the Commission in conformity with part 80 of this chapter.

(b) Transmitters used for public correspondence by aircraft stations in the Aeronautical Mobile-Satellite (R) or Maritime Mobile-Satellite frequencies must be certificated by the Commission in conformity with part 87. Aircraft earth stations that are required to be commissioned to use a privately owned satellite system also must meet the provisions of § 87.51.

(c) A continuous watch must be maintained on the frequencies used for safety and regularity of flight while public correspondence communications are being handled. For aircraft earth stations, this requirement is satisfied by compliance with the priority and preemptive access requirements of § 87.187(q).

(d) All communications in the Aeronautical Mobile Service and the Aeronautical Mobile-Satellite (R) Service have priority over public correspondence.

(e) Transmission of public correspondence must be suspended when such operation will delay or interfere with message pertaining to safety of life and property or regularity of flight, or when ordered by the captain of the aircraft.

[53 FR 28940, Aug. 1, 1988, as amended at 57 FR 45750, Oct. 5, 1992; 63 FR 36608, July 7, 1998; 69 FR 32884, June 14, 2004]

§ 87.191 Foreign aircraft stations.

(a) Aircraft of member States of the International Civil Aviation Organization may carry and operate radio transmitters in the United States airspace only if a license has been issued by the State in which the aircraft is registered and the flight crew is provided with a radio operator license of the proper class, issued or recognized by the State in which the aircraft is registered. The use of radio transmitters in the United States airspace must comply with these rules and regulations.

(b) Notwithstanding paragraph (a) of this section where an agreement with a foreign government has been entered into with respect to aircraft registered in the United States but operated by an aircraft operator who is subject to regulation by that foreign government, the aircraft radio station license and aircraft radio operator license may be issued by such foreign government.

EMERGENCY LOCATOR TRANSMITTERS

§ 87.193 Scope of service.

Transmissions by emergency locator transmitters (ELTs) are intended to be actuated manually or automatically and operated automatically as part of an aircraft or a survival craft station as a locating aid for survival purposes.

§ 87.195 Frequencies.

(a) ELTs transmit on the frequency 121.500 MHz, using A3E, A3X or NON emission. ELTs that transmit on the frequency 406.0–406.1 MHz use G1D emission.

(b) The frequency 243.000 MHz is an emergency and distress frequency available for use by survival craft stations, ELTs and equipment used for survival purposes which are also equipped to transmit on the frequency 121.500 MHz. Use of 243.000 MHz must be limited to transmission of signals and communications for survival purposes. In the case of ELTs use of A3E, A3X or NON emission is permitted.

[53 FR 28940, Aug. 1, 1988, as amended at 56 FR 11518, Mar. 19, 1991; 58 FR 30128, May 26, 1993; 69 FR 32884, June 14, 2004]

EFFECTIVE DATE NOTE: At 76 FR 17353, Mar. 29, 2011, § 87.195 was stayed indefinitely.

EDITORIAL NOTE: At 76 FR 17352, Mar. 29, 2011, § 87.195 was amended by revising the section heading, and adding introductory text, however these amendments could not be incorporated because the section is suspended. For the convenience of the user, the revised and added text is set forth as follows:

§ 87.195 Prohibition of 121.5 MHz ELTs.

The manufacture, importation, sale or use of 121.5 MHz ELTs is prohibited.

* * * * *

§ 87.197 ELT test procedures.

ELT testing must avoid outside radiation. Bench and ground tests conducted outside of an RF-shielded enclosure must be conducted with the ELT terminated into a dummy load.

§ 87.199 Special requirements for 406.0–406.1 MHz ELTs.

(a) 406.0–406.1 ELTs use G1D emission. Except for the spurious emission limits specified in § 87.139(h), 406.0–406.1 MHz ELTs must meet all the technical and performance standards contained in the Radio Technical Commission for Aeronautics document titled ''Minimum Operational Performance Standards 406 MHz Emergency Locator Transmitters (ELT)'' Document No. RTCA/DO–204 dated September 29, 1989. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of this standard can be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC (Reference Information Center) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. Copies of the RTCA standards also may be obtained from the Radio Technical Commission of Aeronautics, One McPherson Square, 1425 K Street, NW., Washington, DC 20005.

(b) The 406.0–406.1 MHz ELT must contain as an integral part a homing beacon operating only on 121.500 MHz that meets all the requirements described in the RTCA Recommended Standards document described in paragraph (a) of this section. The 121.500 MHz homing beacon must have a continuous duty cycle that may be interrupted during the transmission of the 406.0–406.1 MHz signal only.

(c) Prior to verification of a 406.0–406.1 MHz ELT, the ELT must be certified by a test facility recognized by one of the COSPAS/SARSAT Partners that the equipment satisfies the design characteristics associated with the COSPAS/SARSAT document COSPAS/SARSAT 406 MHz Distress Beacon Type Approval Standard (C/S T.007). Additionally, an independent test facility must certify that the ELT complies with the electrical and environmental standards associated with the RTCA Recommended Standards.

(d) The procedures for verification are contained in subpart J of part 2 of this chapter.

(e) An identification code, issued by the National Oceanic and Atmospheric Administration (NOAA), the United States Program Manager for the 406.0–406.1 MHz COSPAS/SARSAT satellite system, must be programmed in each ELT unit to establish a unique identification for each ELT station. With each marketable ELT unit the manufacturer or grantee must include a postage pre-paid registration card printed with the ELT identification code addressed to: NOAA/SARSAT Beacon Registration, E/SP3, Federal Building 4, Room 3320, 5200 Auth Road, Suitland, MD 20746–4304. The registration card must request the owner's name, address, telephone, type of aircraft, alternate emergency contact, and other information as required by NOAA. The registration card must also contain information regarding the availability to register the ELT at NOAA's online Web-based registration database at: *http://www.beaconregistration.noaa.gov*. Further, the following statement must be included: ''WARNING ' Failure to register this ELT with NOAA before installation could result in a monetary forfeiture being issued to the owner.''

(f) To enhance protection of life and property, it is mandatory that each 406.0–406.1 MHz ELT must be registered with NOAA before installation and that information be kept up-to-date. In addition to the identification plate or label requirements contained in §§ 2.925 and 2.926 of this chapter, each 406.0–406.1 MHz ELT must be provided on the outside with a clearly discernable permanent plate or label containing the following statement: ''The owner of this 406.0–406.1 MHz ELT must register the NOAA identification code contained on this label with the National Oceanic and Atmospheric Administration (NOAA), whose address is: NOAA/SARSAT Beacon Registration, E/SP3, Federal Building 4, Room 3320, 5200

Auth Road, Suitland, MD 20746–4304.'' Aircraft owners shall advise NOAA in writing upon change of aircraft or ELT ownership, or any other change in registration information. Fleet operators must notify NOAA upon transfer of ELT to another aircraft outside of the owner's control, or an other change in registration information. NOAA will provide registrants with proof of registration and change of registration postcards.

(g) For 406.0–406.1 MHz ELTs whose identification code can be changed after manufacture, the identification code shown on the plant or label must be easily replaceable using commonly available tools.

[69 FR 32885, June 14, 2004, as amended at 76 FR 17352, Mar. 29, 2011]

Subpart G—Aeronautical Advisory Stations (Unicoms)

§ 87.213 Scope of service.

(a) An aeronautical advisory station (unicom) must provide service to any aircraft station upon request and without discrimination. A unicom must provide impartial information concerning available ground services.

(b)(1) Unicom transmissions must be limited to the necessities of safe and expeditious operation of aircraft such as condition of runways, types of fuel available, wind conditions, weather information, dispatching, or other necessary information. At any airport at which a control tower, control tower remote communications outlet station (RCO) or FAA flight service station is located, unicoms must not transmit information pertaining to the conditions of runways, wind conditions, or weather information during the hours of operation of the control tower, RCO or FAA service station.

(2) On a secondary basis, unicoms may transmit communications which pertain to the efficient portal-to-portal transit of an aircraft, such as requests for ground transportation, food or lodging.

(3) Communications between unicoms and air carrier must be limited to the necessities of safety of life and property.

(4) Unicoms may communicate with aeronautical utility stations and ground vehicles concerning runway conditions and safety hazards on the airport when neither a control tower nor FAA flight service station is in operation.

(c) Unicoms must not be used for air traffic control (ATC) purposes other than to relay ATC information between the pilot and air traffic controller. Relaying of ATC information is limited to the following:

(1) Revisions of proposed departure time;

(2) Takeoff, arrival or flight plan cancellation time;

(3) ATC clearances, provided a letter of agreement is obtained from the FAA by the licensee of the unicom.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 30464, July 26, 1990]

§ 87.215 Supplemental eligibility.

(a) A unicom and any associated dispatch or control points must be located on the airport to be served.

(b) Only one unicom will be authorized to operate at an airport which does not have a control tower, RCO or FAA flight service station that operates on the published common traffic advisory frequency. At any other airport, the one unicom limitation does not apply, and the airport operator and all aviation services organizations may be licensed to operate a unicom on the assigned frequency.

(c) At an airport where only one unicom may be licensed, eligibility for new unicom licenses is restricted to State or local government entities, and to nongovernmental organizations (NGOs) that are authorized to apply for the license by a State or local government entity whose primary mission is the provision of public safety services. All applications submitted by NGOs must be accompanied by a new, written certification of support (for the NGO applicant to operate the applied for station) by the state or local government entity. Applications for a unicom license at the same airport, where only one unicom may be licensed, that are filed by two or more applicants meeting these eligibility criteria must be resolved through settlement or technical amendment.

(d) At an airport where only one unicom may be licensed, the license may be assigned or transferred only to an entity meeting the requirements of paragraph (c) of this section.

(e) An applicant for renewal of a unicom license shall be granted a presumptive renewal expectancy regardless of whether the applicant is eligible for a new unicom license under paragraph (c) of this section. Unless the renewal expectancy is defeated, applications that are mutually exclusive with the renewal application will not be accepted. The renewal expectancy may be defeated only upon a determination, following a hearing duly designated on the basis of a petition to deny or on the Commission's own motion, that the renewal applicant has not provided substantial service. For purposes of this paragraph, substantial service means service which is sound, favorable, and substantially above a level of mediocre service during the applicant's past license term. If the renewal expectancy is defeated, the renewal application will be dismissed unless the renewal applicant is eligible for a new unicom license pursuant to paragraph (c) of this section.

(f) At an airport where only one unicom may be licensed, when the Commission believes that the unicom has been abandoned or has ceased operation, another unicom may be licensed on an interim basis pending final determination of the status of the original unicom. An applicant for an interim license must notify the present licensee and must comply with the notice requirements of paragraph (g) of this section.

(g) An applicant for a unicom license, renewal or modification of frequency assignment at an airport which does not have a control tower, RCO or FAA flight service station must notify in writing the owner of the airport and all aviation service organizations located at the airport. The notice must include the applicant's name and address, the name of the airport and a statement that the applicant intends to file an application with the Commission for a unicom. The notice must be given within the ten days preceding the filing of the application with the Commission. Each applicant must certify upon application that either notice has been given and include the date of notification, or notice is not required because the applicant owns the airport and there are no organizations that should be notified.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 30464, July 26, 1990; 63 FR 68957, Dec. 14, 1998; 69 FR 32885, June 14, 2004; 76 FR 17352, Mar. 29, 2011]

§ 87.217 Frequencies.

(a) Only one unicom frequency will be assigned at any one airport. Applicants must request a particular frequency, which will be taken into consideration when the assignment is made. The frequencies assignable to unicoms are:

(1) 122.950 MHz at airports which have a full-time control tower or full-time FAA flight service station.

(2) 122.700, 122.725, 122.800, 122.975, 123.000, 123.050 or 123.075 MHz at all other airports.

(b) 121.500 MHz: emergency and distress only.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 30464, July 26, 1990; 58 FR 67696, Dec. 22, 1993; 69 FR 32885, June 14, 2004]

§ 87.219 Automatic operations.

(a) A station operator need not be present when an automated unicom is in operation.

(b) Unicoms operating in an automated mode must comply with the requirements of paragraphs (1)–(5) of this section, in addition to the requirements applicable to non-automated unicom operations.

(1) An automated unicom must transmit only in response to interrogating signals from aircraft, including but not limited to the brief keyed RF signals specified in § 87.187(y).

(2) An automated unicom must monitor the unicom frequency prior to transmission, and provide a brief delay between the aircraft's interrogating signal and the automatic unicom's response.

(3) Automated advisory transmissions must be as brief as possible, and must never exceed one minute in length.

(4) An automated unicom may not provide weather information at an airport that has an operational, FAA-certified, automatic weather facility, unless the unicom itself is certified by the FAA.

(5) If weather information is provided by an automated unicom:

(i) Weather sensors must be placed in order to adequately represent the weather conditions at the airport(s) to be served;

(ii) The weather information must be proceeded by the word ''advisory;''

(iii) The phrase ''automated advisory'' must be included when the weather information was gathered by real-time sensors or within the last minute; and,

(iv) The time and date of the last update must be included when the weather information was not gathered within the last minute.

(c) Only one automated unicom may be operated at an uncontrolled airport. Prior to the operation of an automated unicom at an airport with more than one unicom licensee, all of the licensees at that airport must sign a letter of agreement stating which licensee(s) control the automated unicom operations, and, if control is to be shared among several operators, how that control will be divided or scheduled. The original or a copy of the letter of agreement must be kept with each licensees' station records. Within 90 days of the date upon which a new unicom operator is licensed at an airport where more than one unicom is authorized, and an automated unicom is being operated, an amended letter of agreement that includes the new licensee's signature must be signed or automated unicom operations must cease.

[64 FR 27475, May 20, 1999]

Subpart H—Aeronautical Multicom Stations

§ 87.237 Scope of service.

(a) The communications of an aeronautical multicom station (multicom) must pertain to activities of a temporary, seasonal or emergency nature involving aircraft in flight. Communications are limited to directing or coordinating ground activities from the air or aerial activities from the ground. Air-to-air communications will be authorized if the communications are directly connected with the air-to-ground or ground-to-air activities described above. Multicom communications must not include those air/ground communications provided for elsewhere in this part.

(b) If there is not unicom and an applicant is unable to meet the requirements for a unicom license, the applicant will be eligible for a multicom license.

(1) The multicom license becomes invalid when a unicom is established at the landing area.

(2) Multicoms must not be used for ATC purposes other than the relay of ATC information between the pilot and air traffic controller. Relaying of ATC information is limited to the following:

(i) Revisions of proposed departure time;

(ii) Takeoff, arrival flight plan cancellation time;

(iii) ATC clearances, provided a letter of agreement is obtained from the FAA by the licensee of the multicom.

(3) Communications by a multicom must be limited to the safe and expeditious operation of private aircraft, pertaining to the conditions of runways, types of fuel available, wind conditions, weather information, dispatching or other information. On a secondary basis, multicoms may transmit communictions which pertain to efficient portal-to-portal transit of an aircraft such as requests for ground transportation, food or lodging.

§ 87.239 Supplemental eligibility.

Each applicant for a multicom may be required to demonstrate why such a station is necessary, based on the scope of service defined above.

[63 FR 68957, Dec. 14, 1998]

§ 87.241 Frequencies.

(a) 121.500 MHz: emergency and distress only;

(b) 122.850 or 122.900 MHz;

(c) 122.925 MHz: available for assignment to communicate with aircraft when coordinating foresty management and fire suppression, fish and game management and protection, and

environmental monitoring and protection.

Subpart I—Aeronautical Enroute Stations, Aeronautical Fixed Stations, and Aircraft Data Link Land Test Stations

AERONAUTICAL ENROUTE STATIONS

§ 87.261 Scope of service.

(a) Aeronautical enroute stations provide operational control communications to aircraft along domestic or international air routes. Operational control communications include the safe, efficient and economical operation of aircraft, such as fuel, weather, position reports, aircraft performance, and essential services and supplies. Public correspondence is prohibited.

(b) Service must be provided to any aircraft station licensee who makes cooperative arrangements for the operation, maintenance and liability of the stations which are to furnish enroute service. In emergency or distress situations service must be provided without prior arrangements.

(c) Except in Alaska, only one aeronautical enroute station licensee will be authorized at any one location. In Alaska, only one aeronautical enroute station licensee in the domestic service and one aeronautical enroute station licensee in the international service will be authorized at any one location. (Because enroute stations may provide service over a large area containing a number of air routes or only provide communications in the local area of an airport, location here means the area which can be adequately served by the particular station.)

(d) In Alaska, only stations which serve scheduled air carriers will be licensed to operate aeronautical enroute stations. Applicants must show that the station will provide communications only along routes served by scheduled air carriers.

(e) Mobile units may be operated under an aeronautical enroute station authorization so long as the units are limited to use at an airport and are only used to communicate with aircraft on the ground or the associated aeronautical enroute station. Mobile units are further limited to operation on the VHF frequencies listed in 87.263(a)(1).

(f) Mobile units licensed under paragraph (e) of this section shall not be operated on air traffic control frequencies, nor cause harmful interference to, communications on air traffic control frequencies.

[53 FR 28940, Aug. 1, 1988, as amended at 64 FR 27476, May 20, 1999]

§ 87.263 Frequencies.

(a) *Domestic VHF service.* (1) Frequencies in the 128.8125–132.125 MHz and 136.4875–137.00 MHz bands are available to serve domestic routes, except that the frequency 136.750 MHz is available only to aeronautical enroute stations located at least 288 kilometers (180 miles) from the Gulf of Mexico shoreline (outside the Gulf of Mexico region). The frequencies 136.900 MHz, 136.925 MHz, 136.950 MHz and 136.975 MHz are available to serve domestic and international routes. Frequency assignments may be based on either 8.33 kHz or 25 kHz spacing. Use of these frequencies must be compatible with existing operations and must be in accordance with pertinent international treaties and agreements.

(2) A system or network of interconnected enroute stations may employ offset carrier techniques on the frequencies listed in paragraph (a)(1). The carrier frequencies of the individual transmitters must not be offset by more than ±8kHz.

(3) The frequencies 122.825 and 122.875 MHz are available for assignment to enroute stations which provide local area service to aircraft approaching or departing a particular airport. These frequencies will be assigned without regard to the restrictions contained in § 87.261 (c) and (d). Only organizations operating aircraft with a maximum capacity of 56 passengers or 8,200 kg (18,000 lbs) cargo will be authorized use of these enroute frequencies.

(4) In Alaska, the frequencies 131.500, 131.600, 131.800 and 131.900 MHz may be assigned to aeronautical enroute stations without regard to the restrictions contained in § 87.261 (c) and (d).

(5) The frequency 136.750 MHz is available in the Gulf of Mexico Region to serve domestic routes over the Gulf of Mexico and adjacent coastal areas.

Assignment of this frequency in the Gulf of Mexico Region shall be to licensees first licensed on this frequency in the Gulf of Mexico Region prior to January 1, 1994, their successors and assigns, and is not subject to the conditions in § 87.261(c) and paragraph (a)(2) of this section. For the purpose of this paragraph, the Gulf of Mexico Region is defined as an area bounded on the east, north, and west by a line 288 km (180 miles) from the Gulf of Mexico shore line. Inland stations must be located within forty-eight kilometers (30 miles) of the Gulf of Mexico shore line.

(b) *Domestic HF service.* (1) Regular use of high frequencies for aeronautical enroute or any aeronautical mobile (R) communications in the domestic service within the continental United States (excluding Alaska) will not be authorized.

(2) These frequencies (carrier) are available for assignment to serve aircraft operating in support of offshore drilling operations in open sea areas beyond the range of VHF propagation:

kHz	
2878.0	4672.0
3019.0	5463.0
3434.0	5508.0

(3) Alaska: The following frequencies (carrier) are available for assignment to serve domestic air routes in the Alaska area:

(i) *Throughout Alaska:* Shared with the FAA and assigned where an applicant shows the need for a service not provided by the FAA.

kHz	
2866.0	5631.0

(ii) *Alaska Aleutian chain and feeders.*

kHz	
2911.0	8855.0
2956.0	10066.0
5496.0	11363.0
6580.0	

(iii) *Central and Southeast Alaska and feeders.*

kHz	
2875.0	6580.0
2911.0	6604.0
3470.0	8876.0
5484.0	11357.0

(iv) The following frequencies (carrier) are available to enroute stations in Alaska without regard to the restrictions contained in § 87.261 (c) or (d). These frequencies may also be used for communications between enroute stations concerning matters directly affecting aircraft with which they are engaged. Enroute stations located at an uncontrolled airport shall not transmit information concerning runway, wind or weather conditions during the operating hours of a unicom.

kHz	
3449.0	5472.0
5167.5 [1]	5490.0

[1] The frequency 5167.5 kHz is available to any station for emergency communications in Alaska. No airborne operations are permitted. Peak envelope power of stations operating on this frequency must not exceed 150 watts. This frequency may also be used by Alaska private fixed stations for calling purposes, but only for establishing communications.

(c) *International VHF service.* Frequencies in the 128.825–132.000 and 136.000–137.000 MHz bands are available to enroute stations serving international flight operations. Frequency assignments are based on either 8.33 kHz or 25 kHz channel spacing. Proposed operations must be compatible with existing operations in the band.

(d) *International HF service.* High frequencies (carrier) available to enroute stations serving international flight operations on the Major World Air Route Areas (MWARA's), as defined in the international Radio Regulations and the ICAO Assignment Plan, are:

(1) Central East Pacific (CEP):

kHz	
2869.0	8843.0
3413.0	10057.0
4657.0	11282.0
5547.0	13300.0
5574.0	17904.0
6673.0	

(2) Central West Pacific (CWP):

kHz	
2998.0	6562.0
3455.0	8903.0
4666.0	10081.0
5652.0	11384.0
5661.0	13300.0
6532.0	17904.0

(3) North Pacific (NP):

kHz	
2932.0	10048.0
5628.0	11330.0
6655.0	13300.0

kHz—Continued	
6661.0	17904.0

(4) South Pacific (SP):

kHz	
3467.0	10084.0
5559.0	11327.0
5643.0	13300.0
8867.0	17904.0

(5) North Atlantic (NAT):

kHz	
2872.0	8825.0
2899.0	8831.0
2962.0	8864.0
2971.0	8879.0
3016.0	8891.0
3476.0	8906.0
4675.0	11279.0
5598.0	11309.0
5616.0	11336.0
5649.0	13291.0
6622.0	13306.0
6628.0	17946.0

(6) Europe (EUR):

kHz	
3479.0	10084.0
5661.0	13288.0
6598.0	17961.0

(7) South America (SAM):

kHz	
2944.0	10024.0
3479.0	10096.0
4669.0	11360.0
5526.0	13297.0
6649.0	17907.0
8855.0	

(8) South Atlantic (SAT):

kHz	
2854.0	8861.0
2935.0	11291.0
3452.0	13315.0
5565.0	13357.0
6535.0	17955.0

(9) Southeast Asia (SEA):

kHz	
3470.0	10066.0
3485.0	11396.0
5649.0	13309.0
5655.0	13318.0
6556.0	17907.0
8942.0	

(10) East Asia (EA):

kHz	
3016.0	10042.0
3485.0	11396.0
3491.0	13297.0
5655.0	13303.0
5670.0	13309.0
6571.0	17907.0
8897.0	

(11) Middle East (MID):

kHz	
2944.0	6631.0
2992.0	8918.0
3467.0	8951.0
3473.0	10018.0
4669.0	11375.0
5658.0	13288.0
5667.0	13312.0
6625.0	17961.0

(12) Africa (AFI):

kHz	
2851.0	6673.0
2878.0	8894.0
3419.0	8903.0
3425.0	8894.0
3467.0	11300.0
4657.0	11330.0
5493.0	13273.0
5652.0	13288.0
5658.0	13294.0
6559.0	17961.0
6574.0	

(13) Indian Ocean (INO):

kHz	
3476.0	13306.0
5634.0	17961.0
8879.0	

(14) North Central Asia (NCA):

kHz	
3004.0	6592.0
3019.0	10096.0
4678.0	13303.0
5646.0	13315.0
5664.0	17958.0

(15) Caribbean (CAR):

kHz	
2887.0	8846.0
3455.0	8918.0
5520.0	11387.0
5550.0	11396.0
6577.0	13297.0
6586.0	17907.0

(e) *Long distance operational control.* Long distance operational control frequencies provide communications between aeronautical enroute stations

and aircraft stations anywhere in the world for control of the regularity and efficiency of flight and safety of aircraft. World-wide frequencies are not assigned by administrations for MWARA and Regional and Domestic Air Route Area (RDARA).

kHz	
3013.0	10075.0
3494.0	11342.0
5529.0	11348.0
5538.0	13330.0
6637.0	13348.0
6640.0	17925.0
8933.0	21964.0
10033.0	

(f) *121.500 MHz:* Emergency and distress only.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 55 FR 28628, July 12, 1990; 56 FR 21084, May 7, 1991; 58 FR 44954, Aug. 25, 1993; 66 FR 26800, May 15, 2001; 76 FR 17352, Mar. 29, 2011]

§ 87.265 Administrative communications.

Domestic VHF aeronautical enroute stations authorized to use A9W emission on any frequency listed in § 87.263(a)(1) or § 87.263(a)(3) may transmit digital administrative communications on a secondary basis, in addition to the operational and control communications routinely permitted under § 87.261(a) above. Such secondary administrative communications must directly relate to the business of a participating aircraft operator in providing travel and transportation services to the flying public or to the travel, transportation or scheduling activities of the aircraft operator itself. Stations transmitting administrative communications must provide absolute priority for operational control and other safety communications by means of an automatic priority control system.

[54 FR 11721, Mar. 22, 1989]

AERONAUTICAL FIXED STATIONS

§ 87.275 Scope of service.

Aeronautical fixed stations provide non-public point-to-point communications service pertaining to safety, regularity and economy of flight. These stations must transmit, without discrimination, messages from aircraft which have entered into cooperative arrangements governing the operation and maintenance of such stations. Aeronautical fixed station licensees are required to transmit, without charge or discrimination, all emergency communications.

§ 87.277 Supplemental eligibility.

Aeronautical fixed station licenses will only be issued to the licensees of associated aeronautical enroute stations. Aeronautical fixed station licenses will not be issued where adequate land line facilities are available.

§ 87.279 Frequencies.

(a) *United States (except Alaska).* The applicant must request specific frequencies in accordance with § 2.106 of this chapter. The Commission will determine the suitability of the applicant's selection based on the probability of interference to and from existing services assigned on the same or adjacent frequencies. All new assignments of frequencies will be subject to such conditions as may be required to minimize the possibility of harmful interference to existing services.

(b) *Alaska.* (1) Only stations which serve scheduled air carriers will be licensed. Applicants must show that the station will provide communications only along routes served by the scheduled operations of such carriers.

(2) The following frequencies are available in Alaska. These frequencies will only be licensed in conjunction with licenses for use of the aeronautical enroute frequencies specified in § 87.263(c).

kHz	
2648.0	5310.0
4645.0	5887.5
4947.5	8015.0
5122.5	

(c) *Gulf of Mexico.* In addition to the provisions of paragraph (a) of this section, the frequencies 4550.0 and 5036.0 kHz are available in the Gulf of Mexico.

AIRCRAFT DATA LINK LAND TEST STATIONS

§ 87.285 Scope of service.

The frequencies indicated in § 87.287 of this chapter may be used to test aircraft data link systems on a secondary basis to other licensed stations. Equipment must be designed so that it will engage in data link exchange only with the aircraft whose identification has been programmed into the device, and must comply with the applicable specifications for VDL Mode 2 operation set forth in the ICAO ''Manual on VHF Digital Link (VDL) Mode 2'' First Edition-2001, and RTCA DO–281A,'' Minimum Operational Performance Standards for Aircraft VDL Mode 2 Physical, Link and Network Layer'', November 8, 2005. These documents are incorporated by reference in accordance with 5 U.S.C. 552(a), and 1 CFR part 51 and approved by the Director of the Federal Register. The RTCA document is available and may be obtained from RTCA, Inc., 1828 L Street NW., Suite 805, Washington, DC 20036 and by email to *info@rtca.org* or go to *http://RTCA.org*. The ICAO document is available and may be obtained from the ICAO, Customer Services Unit, 999 University Street, Montréal, Quebec H3C 5H7, Canada, by email to *icaohq@icao.int* or go to: *http://www.ICAO.int*. You may inspect a copy at the Federal Communications Commission, 445 12th Street SW., Washington, DC 20554, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*.

[78 FR 61207, Oct. 3, 2013]

§ 87.287 Frequencies.

(a) The frequencies assignable to aircraft data link land test stations are 131.450 MHz, 131.550 MHz, 131.725 MHz, 131.825 MHz, 136.850 MHz, 136.900 MHz, 136.925 MHz, 136.950 MHz, and 136.975 MHz. Interstitial frequencies separated by 8.33 kilohertz from these frequencies may also be assigned.

(b) Before submitting an application for an aircraft data link land test station, an applicant must obtain written permission from the licensee of the aeronautical enroute stations serving the areas in which the aircraft data link land test station will operate on a co-channel basis. The Commission may request an applicant to provide documentation as to this fact.

[78 FR 61207, Oct. 3, 2013]

Subpart J—Flight Test Stations

§ 87.299 Scope of service.

The use of flight test stations is restricted to the transmission of necessary information or instructions relating directly to tests of aircraft or components thereof.

§ 87.301 Supplemental eligibility.

(a) The following entities are eligible for flight test station licenses:

(1) Manufacturers of aircraft or major aircraft components;

(2) A parent corporation or its subsidiary if either corporation is a manufacturer of aircraft or major aircraft components; or

(3) Educational institutions and persons primarily engaged in the design, development, modification, and flight test evaluation of aircraft or major aircraft components.

(b) Each application must include a certification sufficient to establish the applicant's eligibility under the criteria in paragraph (a) of this section.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68957, Dec. 14, 1998]

§ 87.303 Frequencies.

(a) These frequencies are available for assignment to flight test land and aircraft stations:

3281.0 [1]	123.175 [2]	123.225 [3]	123.400 [2]
	123.200 [3]	123.375 [3]	123.450 [3]

(b) These additional frequencies are available for assignment only to flight test stations of aircraft manufacturers:

MHz	MHz	MHz	MHz
123.125 [2]	123.275 [3]	123.425 [3]	123.550 [3]
123.150 [2]	123.325 [3]	123.475 [3]	123.575 [2]
123.250 [3]	123.350 [3]	123.525 [3]	

[1] When R3E, H3E or J3E emission is used, the assigned frequency will be 3282.4 kHz (3281.0 kHz carrier frequency).

[2] This frequency is available only to itinerant stations that have a requirement to be periodically transferred to various locations.

[3] Mobile station operations on these frequencies are limited to an area within 320 km (200 mi) of an associated flight test land station.

(c) These frequencies are available for equipment test, emergency and backup use with aircraft beyond the range of VHF propagation. Either H2B, J3E, J7B or J9W emission may be used.

Frequencies (carrier) available kHz:

kHz	
2851.0	8822.0
3004.0	10045.0
3443.0	11288.0
5451.0	11306.0
5469.0	13312.0
5571.0	17964.0
6550.0	21931.0

(d)(1) Frequencies in the bands 1435–1525 MHz and 2360–2395 MHz are assigned in the mobile service primarily for aeronautical telemetry and associated telecommand operations for flight testing of aircraft and missiles, or their major components. The bands 2310–2320 MHz and 2345–2360 MHz are also available for these purposes on a secondary basis. Permissible uses of these bands include telemetry and associated telecommand operations associated with the launching and reentry into the Earth's atmosphere, as well as any incidental orbiting prior to reentry, of objects undergoing flight tests. In the band 1435–1525 MHz, the following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, and 1524.5 MHz. In the band 2360–2395 MHz, the following frequencies may be assigned for telemetry and associated telecommand operations of expendable and re-usable launch vehicles, whether or not such operations involve flight testing: 2364.5, 2370.5 and 2382.5 MHz. In the band 2360–2395 MHz, all other mobile telemetry uses shall not cause harmful interference to, or claim protection from interference from, the above uses.

(2) The authorized bandwidths for stations operating in the bands 1435.0–1525.0 MHz, 1525.0–1535.0 MHz and 2310.0–2390.0 MHz are normally 1, 3 or 5 MHz. Applications for greater bandwidths will be considered in accordance with the provisions of § 87.135. Each assignment will be centered on a frequency between 1435.5 MHz and 1534.5 MHz or between 2310.5 MHz and 2389.5 MHz, with 1 MHz channel spacing.

(e) 121.500 MHz: Emergency and distress only.

(f) Frequency assignments for Flight Test VHF Stations may be based on either 8.33 kHz or 25 kHz spacing. Assignable frequencies include the interstitial frequencies 8.33 kHz from the VHF frequencies listed in paragraphs (a) and (b) of this section. Each 8.33 kHz interstitial frequency is subject to the same eligibility criteria and limitations as the nearest frequency listed in paragraphs (a) and (b) of this section.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 4175, Feb. 7, 1990; 58 FR 44954, Aug. 25, 1993; 58 FR 67696, Dec. 22, 1993; 60 FR 37829, July 24, 1995; 62 FR 11107, Mar. 11, 1997; 68 FR 74388, Dec. 23, 2003; 69 FR 77950, Dec. 29, 2004; 71 FR 29818, May 24, 2006; 76 FR 17352, Mar. 29, 2011]

§ 87.305 Frequency coordination.

(a)(1) Each application for a new station license, renewal or modification of an existing license concerning flight test frequencies, except as provided in paragraph (b) of this section, must be accompanied by a statement from a frequency advisory committee. The committee must comment on the frequencies requested or the proposed changes in the authorized station and the probable interference to existing stations. The committee must consider all stations operating on the frequencies requested or assigned within 320 km (200 mi) of the proposed area of operation and all prior coordinations and assignments on the proposed frequency(ies). The committee must also recommend frequencies resulting in the minimum interference. The Committee must coordinate in writing all requests for frequencies or proposed operating changes in the 1435–1535 MHz and 2310–2390 MHz bands with the responsible Government Area Frequency Coordinators listed in the NTIA ''Manual of Regulations and Procedures for Federal Radio Frequency Management.'' In addition, committee recommendations may include comments on other technical factors and may contain recommended restrictions which it believes should appear on the license.

(2) The frequency advisory committee must be organized to represent all persons who are eligible for non-

Government radio flight test stations. A statement of organization service area and composition of the committee must be submitted to the Commission for approval. The functions of any advisory committee are purely advisory to the applicant and the Commission, and its recommendations are not binding upon either the applicant or the Commission.

(b) These applications need not be accompanied by evidence of frequency coordination:

(1) Any application for modification not involving change in frequency(ies), power, emission, antenna height, antenna location or area of operation.

(2) Any application for 121.5 MHz.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 58 FR 44954, Aug. 25, 1993]

§ 87.307 Cooperative use of facilities.

(a) The Commission will license only one flight test land station per airport, except as provided in paragraph (d) of this section.

(b) Flight test land stations located at an airport are required to provide service without discrimination, on a cooperative maintenance basis, to anyone eligible for a flight test station license.

(c) When the licensee of a flight test land station intends to conduct flight tests at an area served by another flight test land station, which may result in interference, the licensees must coordinate their schedules in advance. If no agreement is reached, the Commission will determine the time division upon request by either licensee.

(d) Applicants for an additional flight test land station at an airport where such a station is already authorized may be required to submit a factual showing to include the following:

(1) Reasons why shared use of the currently licensed flight test land station is not possible; and

(2) Results of coordination with the current licensee of the flight test station at the airport demonstrating that an additional station can be accommodated without significant degradation of the reliability of existing facilities.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68958, Dec. 14, 1998]

Subpart K—Aviation Support Stations

§ 87.319 Scope of service.

Aviation support stations are used for the following types of operations:

(a) Pilot training;

(b) Coordination of soaring activities between gliders, tow aircraft and land stations;

(c) Coordination of activities between free balloons or lighter-than-air aircraft and ground stations;

(d) Coordination between aircraft and aviation service organizations located on an airport concerning the safe and efficient portal-to-portal transit of the aircraft, such as the types of fuel and ground services available; and

(e) Promotion of safety of life and property.

§ 87.321 Supplemental eligibility.

Each applicant must certify as to its eligibility under the scope of service described above.

[63 FR 68958, Dec. 14, 1998]

§ 87.323 Frequencies.

(a) 121.500 MHz: Emergency and distress only.

(b) The frequencies 121.950, 123.300 and 123.500 MHz are available for assignment to aviation support stations used for pilot training, coordination of lighter-than-air aircraft operations, or coordination of soaring or free ballooning activities. Applicants for 121.950 MHz must coordinate their proposal with the appropriate FAA Regional Spectrum Management Office. The application must specify the FAA Region notified and the date notified. Applicants for aviation support land stations may request frequency(ies) based upon their eligibility although the Commission reserves the right to specify the frequency of assignment. Aviation support mobile stations will be assigned 123.300 and 123.500 MHz. However, aviation support mobile stations must operate only on a noninterference basis to communications between aircraft and aviation support land stations.

(c) The frequency 122.775 MHz and, secondary to aeronautical multicom stations, the frequency 122.850 MHz are

available for assignment to aviation support stations. These frequencies may be used for communications between aviation service organizations and aircraft in the airport area. These frequencies must not be used for air traffic control purposes or to transmit information pertaining to runway, wind or weather conditions.

(d) The frequency 3281.0 kHz is available for assignment to aviation support stations used for coordination of lighter-than-air aircraft operations.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68958, Dec. 14, 1998]

Subpart L—Aeronautical Utility Mobile Stations

§ 87.345 Scope of service.

Aeronautical utility mobile stations provide communications for vehicles operating on an airport movement area. An airport movement area is defined as the runways, taxiways and other areas utilized for taxiing, takeoff and landing of aircraft, exclusive of loading ramp and parking areas.

(a) An aeronautical utility mobile station must monitor its assigned frequency during periods of operation.

(b) At an airport which has a control tower, control tower remote communications outlet station (RCO) or FAA flight service station in operation, communications by an aeronautical utility mobile station are limited to the management of ground vehicular traffic.

(c) Aeronautical utility mobile stations which operate on the airport's unicom frequency or the frequency 122.900 MHz are authorized only to transmit information relating to safety, such as runway conditions and hazards on the airport. These stations are authorized primarily for monitoring communications from and to aircraft approaching or departing the airport.

(d) Transmissions by an aeronautical utility mobile station are subject to the control of the control tower, the FAA flight service station or the unicom, as appropriate. When requested by the control tower, the flight service station or the unicom, an aeronautical utility station must discontinue transmitting immediately.

(e) Communications between aeronautical utility mobile stations are not authorized.

(f) Transmissions by aeronautical utility mobile stations for Universal Access Transceiver service are authorized.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 7333, Mar. 1, 1990; 55 FR 30464, July 26, 1990; 71 FR 70680, Dec. 6, 2006]

§ 87.347 Supplemental eligibility.

(a) Aeronautical utility stations may transmit on unicom frequencies only at airports which have a unicom and a part-time or no control tower, an RCO or an FAA flight service station.

(b) An applicant for an aeronautical utility station operating on a unicom frequency or the frequency 122.900 MHz must:

(1) Have a need to routinely operate a ground vehicle on the airport movement area;

(2) Maintain a list of the vehicle(s) in which the station is to be located;

(3) Certify on the application that either the applicant is the airport owner or operator, or a state or local government aeronautical agency, or that the airport owner or operator has granted permission to operate the vehicle(s) on the airport movement area.

(c) An applicant for an aeronautical utility station requesting authority to transmit on the local control (tower) frequency or on the control tower remote communications outlet (RCO) frequency must certify that the Air Traffic Manager of the airport control tower approves the requested use of the tower or RCO frequency.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 30464, July 26, 1990; 55 FR 30908, July 30, 1990; 63 FR 68958, Dec. 14, 1998]

§ 87.349 Frequencies.

(a) The frequency assigned to an aeronautical utility station at an airport served by a control tower, RCO or FAA flight service station is the frequency used by the control tower for ground traffic control or by the flight service station for communications with vehicles. In addition to the ground control frequency, an aeronautical utility station at an airport served by a control tower or RCO may

be assigned the tower or RCO frequency if the assignment is specifically approved by the FAA as provided for in § 87.347(c). The frequencies assigned are normally from the band 121.600–121.925 MHz.

(b) The frequency assigned to the unicom is available to aeronautical utility stations on a noninterference basis at airports which have a part-time control tower, part-time RCO or part-time FAA flight service station and a unicom.

(c) At airports which have a unicom but no control tower, RCO or FAA flight service station, the frequency assigned to the unicom is available to aeronautical utility stations on a noninterference basis. The frequencies available for assignment to unicoms are described in subpart G of this part.

(d) At airports which have no control tower, RCO, flight service station or unicom, the frequency 122.900 MHz is available for assignment to aeronautical utility stations.

(e) The frequency 978.0 MHz is authorized for Universal Access Transceiver data transmission.

(f) The Commission will assign frequency 1090 MHz for use by aeronautical utility mobile stations for ground vehicle identification and collision avoidance after coordination with the FAA, subject to the following conditions:

(1) The applicant must notify the appropriate Regional Office of the FAA prior to submission to the Commission of an application for a new station or for modification of an existing station. Each application must include the FAA Regional Office notified and date of notification.

(2) Eligibility is restricted to airport operators holding an FAA Airport Operating Certificate, and other entities approved by the FAA on a case-by-case basis to use frequency 1090 MHz for use by aeronautical utility mobile stations for ground vehicle identification and collision avoidance;

(3) No more than two hundred 1090 MHz aeronautical utility mobile stations will be authorized at one airport;

(4) Licenses are limited to only those locations that are within the vicinity of an FAA ASDE–X multilateration system or ADS–B equipment, and/or where the primary purpose for seeking transmit authorization is to provide surface data to aircraft and air traffic control authorities.

(5) Message transmission rates are limited as indicated in the table below:

ADS–B Message	Rate when moving	Rate when stationary
Surface Position Message (Types 5, 6, 7, 8).	Every 0.4 to 0.6 seconds	Every 4.8 to 5.2 seconds.
Aircraft Operational Status (Type 31)	Every 4.8 to 5.2 seconds	Every 4.8 to 5.2 seconds.
Aircraft Identification and Type (Type 2)	Every 4.8 to 5.2 seconds	Every 9.8 to 10.2 seconds.

[55 FR 30464, July 26, 1990, as amended at 55 FR 30908, July 30, 1990; 71 FR 70680, Dec. 6, 2006; 78 FR 61207, Oct. 3, 2013]

§ 87.351 Frequency changes.

When the aeronautical utility frequency is required to be changed because of an action by the FAA or the Commission (such as a change in the ground control of unicom frequency) the licensee must submit an application for modification to specify the new frequency within 10 days from the date the station begins operation on the new frequency. The licensee has temporary authority to use the new frequency from the date of the change pending receipt of the modified license.

Subpart M—Aeronautical Search and Rescue Stations

§ 87.371 Scope of service.

Aeronautical search and rescue land and mobile stations must be used only for communications with aircraft and other aeronautical search and rescue stations engaged in search and rescue activities. Aeronautical land search and rescue stations can be moved for temporary periods from a specified location to an area where actual or practice search and rescue operations are being conducted.

§ 87.373 Supplemental eligibility.

Licenses for aeronautical search and rescue stations will be granted only to governmental entities or private organizations chartered to perform aeronautical search and rescue functions.

§ 87.375 Frequencies.

(a) The frequency 123.100 MHz is available for assignment to aeronautical search and rescue stations for actual search and rescue missions. Each search and rescue station must be equipped to operate on this frequency.

(b) The frequency 122.900 MHz is available for assignment to aeronautical search and rescue stations for organized search and rescue training and for practice search and rescue missions.

(c) The frequencies 3023.0 kHz and 5680.0 kHz are available for assignment to aircraft and ship stations for search and rescue scene-of-action coordination, including communications with participating land stations. Ship stations communicating with aircraft stations must employ 2K80J3E emission.

(d) 121.500 MHz: Emergency and distress only.

Subpart N—Emergency Communications

§ 87.393 Scope of service.

This subpart provides the rules governing operation of stations in the Aviation Services during any national or local emergency situation constituting a threat to national security or safety of life and property. This subpart is consistent with the Aeronautical Emergency Communications System Plan for all Aviation Services licensees of the Commission which was developed pursuant to sections 1, 4(o), 301 and 303 of the Communications Act, and Executive Order 11490, as amended. This Plan provides for emergency communications to meet the requirements of the Plan for the Security Control of Air Traffic and Air Navigation Aids (SCATANA), Civil Reserve Air Fleet (CRAF), War Air Service Program (WASP) and, where applicable, State and Regional Disaster Airlift Planning (SARDA).

§ 87.395 Plan for the Security Control of Air Traffic and Air Navigation Aids (Short Title: SCATANA).

(a) The Plan for the Security Control of Air Traffic and Air Navigation Aids (SCATANA) is promulgated in furtherance of the Federal Aviation Act of 1958, as amended, the Communications Act and Executive Order 11490, as amended. SCATANA defines the responsibilities of the Commission for the security control of non-Federal air navigation aids.

(b) Under the responsibilities defined in SCATANA, an FCC Support Plan for the Security Control of Non-Federal Air Navigation Aids has been developed by the Commission. The FCC Support Plan defines responsibilities, procedures, and instructions in consonance with SCATANA which will effect control of non-Federal air navigation aids when SCATANA is implemented. It permits the use of such navigation aids by aircraft of military and civil agencies when SCATANA is implemented. The FCC Support Plan highlights those parts of SCATANA which deal specifically with non-Federal air navigation aids. SCATANA and the FCC Support Plan apply to radionavigation stations authorized by the Commission in the following manner:

(1) All licensees are subject to restrictions imposed by appropriate military authorities pursuant to SCATANA and the FCC Support Plan when an Air Defense Emergency or Defense Emergency exists or is imminent. The restrictions will be imposed through FAA Air Route Traffic Control Centers (ARTCCs).

(2) All licensees of aeronautical radionavigation (VOR/DME, ILS, MLS, LF and MF non-directional beacons) stations will comply with SCATANA implementation instructions from FAA ARTCCs as follows:

(i) Shut down the above navigation aids as directed. These instructions will permit time to land or disperse airborne aircraft, and will permit extension of time when the air traffic situation dictates.

(ii) Shut down as soon as possible stations which require more than five minutes control time, unless directed otherwise or unless such stations are

essential for the handling of existing air traffic.

(iii) Operate aeronautical radionavigation stations to ensure that required stations, as indicated in flight plans, will be available for authorized aircraft flights.

(3) Licensees of aeronautical radionavigation stations will be notified of the reduction or removal of SCATANA restrictions by FAA ARTCCs when notice of the termination is issued.

(4) Licensees of aeronautical radionavigation stations may voluntarily participate in SCATANA tests as requested by an ARTCC. SCATANA testing must not interrupt the normal service of non-Federal air navigation aids.

§ 87.397 Emergency operations.

(a) The licensee of any land station in the Aviation services, during a local emergency involving the safety of life and property may communicate in a manner other than that specified in the license (See § 87.395). Such emergency operations may include operation at other locations or with equipment not specified in the license or by unlicensed personnel provided that:

(1) Such operations are under the control and supervision of the station licensee,

(2) The emergency use is discontinued as soon as practicable upon termination of the emergency,

(3) In no event shall any station transmit on frequencies other than or with power in excess of that specified in the license,

(4) The details of the emergency must be retained with the station license, and

(5) At a controlled airport these communications must be coordinated with the FAA.

(b) The unicom frequencies listed in subpart G may also be used for communications with private aircraft engaged in organized civil defense activities in preparation for, during an enemy attack or immediately after an enemy attack. When used for these purposes, unicoms may be moved from place to place or operated at unspecified locations, except at landing areas served by other unicoms or control towers.

(c) In any case in which a license for unattended operation has been granted, the Commission may at any time, for national defense, modify the license.

Subpart O—Airport Control Tower Stations

§ 87.417 Scope of service.

(a) Airport control tower stations (control towers) and control tower remote communications outlet stations (RCOs) must limit their communications to the necessities of safe and expeditious operations of aircraft operating on or in the vicinity of the airport. Control towers and RCOs provide air traffic control services to aircraft landing, taking off and taxing on the airport as well as aircraft transiting the airport traffic area. Additionally, control towers and RCOs can provide air traffic control services to vehicles operating on airport movement areas (see subpart L of this part). Control towers and RCOs must serve all aircraft without discrimination. An RCO must be remotely operated from a control tower or other FAA control facility located at a nearby airport.

(b) A control tower must maintain a continuous watch on the following frequencies during the hours of operation:

121.500 MHz
3023.0 kHz (Alaska only)
5680.0 kHz (Alaska only)

The Commission may exempt from these watch requirements the licensee of an airport control tower station if a satisfactory showing has been made that such an exemption will not adversely affect life and property in the air.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 55 FR 30464, July 26, 1990]

§ 87.419 Supplemental eligibility.

Only one control tower or RCO will be licensed at an airport.

[64 FR 27476, May 20, 1999]

§ 87.421 Frequencies.

The Commission will assign VHF frequencies after coordination with the FAA. Frequencies in the following

bands are available to control towers and RCOs. Channel spacing is 25 kHz.

118.000–121.400 MHz
121.600–121.925 MHz
123.600–128.800 MHz
132.025–135.975 MHz

(a) The frequency 123.100 MHz is available for use by control towers and RCOs at special aeronautical events on the condition that no harmful interference is caused to search and rescue operations in the locale involved.

(b) Frequencies in the bands 200.0–285.0 and 325.0–405.0 kHz will normally be assigned only to control towers and RCOs authorized to operate on at least one VHF frequency. The Commission may assign frequencies in these bands to entities that do not provide VHF service in cases where granting such an application will not adversely affect life and property in the air.

(c) Frequencies listed in the introductory paragraph of this section are available to control towers and RCOs for communications with ground vehicles and aircraft on the ground. The antenna heights shall be restricted to the minimum necessary to achieve the required coverage. Channel spacing is 25 kHz.

(d) 121.500 MHz: emergency and distress only.

[53 FR 28940, Aug. 1, 1988, as amended at 55 FR 30464, July 26, 1990; 63 FR 68958, Dec. 14, 1998; 69 FR 32886, June 14, 2004; 71 FR 70680, Dec. 6, 2006]

§ 87.423 Hours of operation.

The control tower must render a communications service 24 hours a day unless the Commission determines, in coordination with the NTIA IRAC, that reduced hours of service will not adversely affect life and property in the air.

[63 FR 68958, Dec. 14, 1998]

§ 87.425 Interference.

Control towers and RCOs must not cause harmful interference to control towers or RCOs at adjacent airports. If interference between adjacent control towers or RCOs exists, the Commission will direct the licensees how to eliminate the interference.

[55 FR 30465, July 26, 1990]

Subpart P—Operational Fixed Stations

§ 87.445 Scope of service.

An operational fixed station provides control, repeater or relay functions for its associated aeronautical station.

§ 87.447 Supplemental eligibility.

An applicant for an operational fixed station must certify that:

(a) The applicant is the licensee of an aeronautical land station in the aeronautical mobile service; and

(b) Common carrier facilities are not available to satisfy the aeronautical station's requirements.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68958, Dec. 14, 1998]

§ 87.449 Frequencies.

The following frequencies in the 72–76 MHz band are assignable to operational fixed stations using vertical polarization, if no harmful interference is caused to TV reception on Channels 4 and 5. These frequencies are shared with the Land Mobile and the Maritime Mobile Services.

OPERATIONAL FREQUENCIES IN THE 72–76 MHZ BAND

Carrier frequency in MHz

72.02	72.66
72.04	72.68
72.06	72.70
72.08	72.72
72.10	72.74
72.12	72.76
72.14	72.78
72.16	72.80
72.18	72.82
72.20	72.84
72.22	72.86
72.24	72.88
72.26	72.90
72.28	72.92
72.30	72.94
72.32	72.96
72.34	72.98
72.36	75.42
72.38	75.46
72.40	75.50
72.42	75.54
72.46	75.58
72.50	75.62
72.54	75.64
72.58	75.66
72.62	75.68
72.64	75.70

75.72	75.86
75.74	75.88
75.76	75.90
75.78	75.92
75.80	75.94
75.82	75.96
75.84	75.98

§ 87.451 Licensing limitations.

Operational fixed stations are subject to the following licensing limitations:

(a) A maximum of four frequencies will be assigned.

(b) Stations will not be authorized when applications indicate less than 16 km (10 miles) separation between a proposed station and a TV transmitter operating on either Channel 4 or 5, or from the post office of a community in which either channel is assigned but not in operation.

(c) Stations located between 16 km (10 miles) and 128 km (80 miles) of a TV transmitter operating on either Channel 4 or 5, or from the post office of a community in which either channel is assigned but not in operation, are secondary to TV operations within the Grade B service contour.[1]

Subpart Q—Stations in the Radiodetermination Service

§ 87.471 Scope of service.

Stations in the aeronautical radiodetermination service provide radionavigation and radiolocation services.

(a) Transmission by radionavigation land stations must be limited to aeronautical navigation, including obstruction warning.

(b) Radionavigation land test stations are used for the testing and calibration of aircraft navigational aids and associated equipment. When used as radionavigation land test stations (MTF) signal generators must be licensed as radionavigation land test stations (MTF). Transmission must be limited to cases when radiation is necessary and there is no alternative.

(c) Transmissions by emergency locator transmitter (ELT) test stations must be limited to necessary testing of ELTs and to training operations related to the use of such transmitters.

[53 FR 28940, Aug. 1, 1988, as amended at 58 FR 67696, Dec. 22, 1993]

§ 87.473 Supplemental eligibility.

(a) Licenses for radionavigation land test stations (MTF) will be granted only to applicants engaged in the development, manufacture or maintenance of aircraft radionavigation equipment. Licenses for radionavigation land test stations (OTF) will be granted only to applicants who agree to establish the facility at an airport for the use of the public.

(b) Licenses for ELT test stations will be granted only to applicants to train personnel in the operation and location of ELTs, or for testing related to the manufacture or design of ELTs.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68958, Dec. 14, 1998]

§ 87.475 Frequencies.

(a) *Frequency coordination*. The Commission will assign frequencies to radionavigation land stations and radionavigation land test stations after coordination with the FAA. The applicant must notify the appropriate Regional Office of the FAA prior to submission to the Commission of an application for a new station or for modification of an existing station to change frequency, power, location or emission. Each application must include the FAA Regional Office notified and date of notification.

(b) *Frequencies available for radionavigation land stations*. (1) LORAN-C is a long range navigation system which operates in the 90–110 kHz band.

(2) Radiobeacon stations enable an aircraft station to determine bearing or direction in relation to the radiobeacon station. Radiobeacons operate in the bands 190–285 kHz; 325–435 kHz; 510–525 kHz; and 525–535 kHz.

[1] OET Bulletin No. 67, March 1988, entitled ''Potential Interference from Operational Fixed Stations in the 72–76 MHz Band to Television Channels 4 and 5'' describes an analytical model that can be used to calculate the potential interference that might result from a given fixed station operation. Copies of the bulletin may be obtained from the Commission's current duplication contractor. Information concerning the current duplication contractor may be obtained from the Office of Public Affairs, Consumer Assistance and Small Business Division, Telephone (202) 632–5050.

Radiobeacons may be authorized, primarily for off-shore use, in the band 525–535 kHz on a non-interference basis to travelers information stations.

(3) Aeronautical marker beacon stations radiate a vertical distinctive pattern on 75 MHz which provides position information to aircraft.

(4) The following table lists the specific frequencies in the 108.100–111.950 MHz band which are assignable to localizer stations with simultaneous radiotelephone channels and their associated glide path station frequency from the 328.600–335.400 MHz band.

Localizer (MHz)	Glide path (MHz)
108.100	334.700
108.150	334.550
108.300	334.100
108.350	333.950
108.500	329.900
108.550	329.750
108.700	330.500
108.750	330.350
108.900	329.300
108.950	329.150
109.100	331.400
109.150	331.250
109.300	332.000
109.350	331.850
109.500	332.600
109.550	332.450
109.700	333.200
109.750	333.050
109.900	333.800
109.950	333.650
110.100	334.400
110.150	334.250
110.300	335.000
110.350	334.850
110.500	329.600
110.550	329.450
110.700	330.200
110.750	330.050
110.900	330.800
110.950	330.650
111.100	331.700
111.150	331.550
111.300	332.300
111.350	332.150
111.500	332.900
111.550	332.750
111.700	333.500
111.750	333.350
111.900	331.100
111.950	330.950

(5) VHF omni-range (VOR) stations are to be assigned frequencies in the 112.050–117.950 MHz band (50 kHz channel spacing) and the following frequencies in the 108–112 MHz band:

108.200	108.600
108.250	108.650
108.400	108.800
108.450	108.850
109.000	110.600
109.050	110.650
109.200	110.800
109.250	110.850
109.400	111.000
109.450	111.050
109.600	111.200
109.650	111.250
109.800	111.400
109.850	111.450
110.000	111.600
110.050	111.650
110.200	111.800
110.250	111.850
110.400	112.000
110.450	

(6) The band 960–1215 MHz is available for the use of land stations and associated airborne electronic aids to air navigation. When distance measuring equipment (DME) is intended to operate with a single VHF navigation station in the 108–117.975 MHz band, the DME operating channel must be paired with the VHF channel as shown in the following table:

DME CHANNELING AND PAIRING

[MHz]

VHF channel	Airborne interrogating frequency	Ground reply frequency
108.000	1041.000	978.000
108.050	1041.000	1104.000
108.100	1042.000	979.000
108.150	1042.000	1105.000
108.200	1043.000	980.000
108.250	1043.000	1106.000
108.300	1044.000	981.000
108.350	1044.000	1107.000
108.400	1045.000	982.000
108.450	1045.000	1108.000
108.500	1046.000	983.000
108.550	1046.000	1109.000
108.600	1047.000	984.000
108.650	1047.000	1110.000
108.700	1048.000	985.000
108.750	1048.000	1111.000
108.800	1049.000	986.000
108.850	1049.000	1112.000
108.900	1050.000	987.000
108.950	1050.000	1113.000
109.000	1051.000	988.000
109.050	1051.000	1114.000
109.100	1052.000	989.000
109.150	1052.000	1115.000
109.200	1053.000	990.000
109.250	1053.000	1116.000
109.300	1054.000	991.000
109.350	1054.000	1117.000
109.400	1055.000	992.000
109.450	1055.000	1118.000
109.500	1056.000	993.000
109.550	1056.000	1119.000
109.600	1057.000	994.000
109.650	1057.000	1120.000
109.700	1058.000	995.000
109.750	1058.000	1121.000
109.800	1059.000	996.000

DME CHANNELING AND PAIRING—Continued

[MHz]

VHF channel	Airborne interrogating frequency	Ground reply frequency
109.850	1059.000	1122.000
109.900	1060.000	997.000
109.950	1060.000	1123.000
110.000	1061.000	998.000
110.050	1061.000	1124.000
110.100	1062.000	999.000
110.150	1062.000	1125.000
110.200	1063.000	1000.000
110.250	1063.000	1126.000
110.300	1064.000	1001.000
110.350	1064.000	1127.000
110.400	1065.000	1002.000
110.450	1065.000	1128.000
110.500	1066.000	1003.000
110.550	1066.000	1129.000
110.600	1067.000	1004.000
110.650	1067.000	1130.000
110.700	1068.000	1005.000
110.750	1068.000	1131.000
110.800	1069.000	1006.000
110.850	1069.000	1132.000
110.900	1070.000	1007.000
110.950	1070.000	1133.000
111.000	1071.000	1008.000
111.050	1071.000	1134.000
111.100	1072.000	1009.000
111.150	1072.000	1135.000
111.200	1073.000	1010.000
111.250	1073.000	1136.000
111.300	1074.000	1011.000
111.350	1074.000	1137.000
111.400	1075.000	1012.000
111.450	1075.000	1138.000
111.500	1076.000	1013.000
111.550	1076.000	1139.000
111.600	1077.000	1014.000
111.650	1077.000	1140.000
111.700	1078.000	1015.000
111.750	1078.000	1141.000
111.800	1079.000	1016.000
111.850	1079.000	1142.000
111.900	1080.000	1017.000
111.950	1080.000	1143.000
112.000	1081.000	1018.000
112.050	1081.000	1144.000
112.100	1082.000	1019.000
112.150	1082.000	1145.000
112.200	1083.000	1020.000
112.250	1083.000	1146.000
112.300	1094.000	1157.000
112.350	1094.000	1031.000
112.400	1095.000	1158.000
112.450	1095.000	1032.000
112.500	1096.000	1159.000
112.550	1096.000	1033.000
112.600	1097.000	1160.000
112.650	1097.000	1034.000
112.700	1098.000	1161.000
112.750	1098.000	1035.000
112.800	1099.000	1162.000
112.850	1099.000	1036.000
112.900	1100.000	1163.000
112.950	1100.000	1037.000
113.000	1101.000	1164.000
113.050	1101.000	1038.000
113.100	1102.000	1165.000
113.150	1102.000	1039.000
113.200	1103.000	1166.000
113.250	1103.000	1040.000
113.300	1104.000	1167.000

DME CHANNELING AND PAIRING—Continued

[MHz]

VHF channel	Airborne interrogating frequency	Ground reply frequency
113.350	1104.000	1041.000
113.400	1105.000	1168.000
113.450	1105.000	1042.000
113.500	1106.000	1169.000
113.550	1106.000	1043.000
113.600	1107.000	1170.000
113.650	1107.000	1044.000
113.700	1108.000	1171.000
113.750	1108.000	1045.000
113.800	1109.000	1172.000
113.850	1109.000	1046.000
113.900	1110.000	1173.000
113.950	1110.000	1047.000
114.000	1111.000	1174.000
114.050	1111.000	1048.000
114.100	1112.000	1175.000
114.150	1112.000	1049.000
114.200	1113.000	1176.000
114.250	1113.000	1050.000
114.300	1114.000	1177.000
114.350	1114.000	1051.000
114.400	1115.000	1178.000
114.450	1115.000	1052.000
114.500	1116.000	1179.000
114.550	1116.000	1053.000
114.600	1117.000	1180.000
114.650	1117.000	1054.000
114.700	1118.000	1181.000
114.750	1118.000	1055.000
114.800	1119.000	1182.000
114.850	1119.000	1056.000
114.900	1120.000	1183.000
114.950	1120.000	1057.000
115.000	1121.000	1184.000
115.050	1121.000	1058.000
115.100	1122.000	1185.000
115.150	1122.000	1059.000
115.200	1123.000	1186.000
115.250	1123.000	1060.000
115.300	1124.000	1187.000
115.350	1124.000	1061.000
115.400	1125.000	1188.000
115.450	1125.000	1062.000
115.500	1126.000	1189.000
115.550	1126.000	1063.000
115.600	1127.000	1190.000
115.650	1127.000	1064.000
115.700	1128.000	1191.000
115.750	1128.000	1065.000
115.800	1129.000	1192.000
115.850	1129.000	1066.000
115.900	1130.000	1193.000
115.950	1130.000	1067.000
116.000	1131.000	1194.000
116.050	1131.000	1068.000
116.100	1132.000	1195.000
116.150	1132.000	1069.000
116.200	1133.000	1196.000
116.250	1133.000	1070.000
116.300	1134.000	1197.000
116.350	1134.000	1071.000
116.400	1135.000	1198.000
116.450	1135.000	1072.000
116.500	1136.000	1199.000
116.550	1136.000	1073.000
116.600	1137.000	1200.000
116.650	1137.000	1074.000
116.700	1138.000	1201.000
116.750	1138.000	1075.000
116.800	1139.000	1202.000

DME CHANNELING AND PAIRING—Continued

[MHz]

VHF channel	Airborne interrogating frequency	Ground reply frequency
116.850	1139.000	1076.000
116.900	1140.000	1203.000
116.950	1140.000	1077.000
117.000	1141.000	1204.000
117.050	1141.000	1078.000
117.100	1142.000	1205.000
117.150	1142.000	1079.000
117.200	1143.000	1206.000
117.250	1143.000	1080.000
117.300	1144.000	1207.000
117.350	1144.000	1081.000
117.400	1145.000	1208.000
117.450	1145.000	1082.000
117.500	1146.000	1209.000
117.550	1146.000	1083.000
117.600	1147.000	1210.000
117.650	1147.000	1084.000
117.700	1148.000	1211.000
117.750	1148.000	1085.000
117.800	1149.000	1212.000
117.850	1149.000	1086.000
117.900	1150.000	1213.000
117.950	1150.000	1087.000

(7) 978.0 MHz is authorized for Universal Access Transceiver service.

(8) 1300–1350 MHz: The use of this band is restricted to surveillance radar stations and associated airborne transponders.

(9) 1559–1626.5 MHz: The use of this band is limited to airborne electronic aids to air navigation and any associated land stations.

(10) 2700–2900 MHz: Non-Government land-based radars may be licensed. U.S. Government coordination is required. Applicants must demonstrate a need for the service which the Government is not prepared to render.

(11) 5000–5250 MHz: This band is to be used for the operation of the international standard system (microwave landing system).

(12) 9000–9200 MHz: This band is available to land-based radars. Stations operating in this band may receive interference from stations operating in the radiolocation service.

(13) 15,400–15,700 MHz: This band is available for use of land stations associated with airborne electronic aids to air navigation.

(14) 24,250–25,250, 32,300–33,400 MHz: In these bands, land-based radionavigation aids are permitted where they operate with airborne radionavigation devices.

(c) *Frequencies available for radionavigation land test stations.* (1) The frequencies set forth in §§ 87.187(c), (e) through (j), (r), (t), and (ff); and 87.475(b)(6) through (b)(11) may be assigned to radionavigation land test stations for the testing of aircraft transmitting equipment that normally operate on these frequencies and for the testing of land-based receiving equipment that operate with airborne radionavigation equipment.

(2) The frequencies available for assignment to radionavigation land test stations for the testing of airborne receiving equipment are 108.000 and 108.050 MHz for VHF omni-range; 108.100 and 108.150 MHz for localizer; 334.550 and 334.700 MHz for glide slope; 978 and 979 MHz (X channel)/1104 MHz (Y channel) for DME; 978 MHz for Universal Access Transceiver; 1030 MHz for air traffic control radar beacon transponders; 1090 MHz for Traffic Alert and Collision Avoidance Systems (TCAS); and 5031.0 MHz for microwave landing systems. Additionally, the frequencies in paragraph (b) of this section may be assigned to radionavigation land test stations after coordination with the FAA. The following conditions apply:after coordination with the FAA. The following conditions apply:

(i) The maximum power authorized on the frequencies 108.150 and 334.550 MHz is 1 milliwatt. The maximum power authorized on all other frequencies is one watt.

(ii) The pulse repetition rate (PRR) of the 1030 MHz ATC radar beacon test set will be 235 pulses per second (pps) ±5pps.

(iii) The assignment of 108.000 MHz is subject to the condition that no interference will be caused to the reception of FM broadcasting stations and stations using the frequency are not protected against interference from FM broadcasting stations.

(d) *Frequencies available for ELT test stations.* The frequencies available for assignment to ELT test stations are 121.600, 121.650, 121.700, 121.750, 121.800, 121.850, and 121.900 MHz. Licensees must:

(1) Not cause harmful interference to voice communications on these frequencies or any harmonically related frequency.

(2) Coordinate with the appropriate FAA Regional Spectrum Management Office prior to each activation of the transmitter.

(e) *Frequencies available for differential GPS stations.* Frequencies in the 112–118 MHz band may be assigned to Special Category I (SCAT-I) ground stations for differential GPS data links.

(1) The frequencies available are on 25 kHz centers with the lowest assignable frequency being centered at 112.000 MHz and the highest assignable frequency being centered at 117.950 MHz.

(2) Applicants must coordinate a frequency, time slot assignment, and three-letter identifier with the FAA and provide this information to the Commission upon application.

[53 FR 28940, Aug. 1, 1988, as amended at 54 FR 11721, Mar. 22, 1989; 63 FR 68958, Dec. 14, 1998; 64 FR 27476, May 20, 1999; 69 FR 32886, June 14, 2004; 71 FR 70680, Dec. 6, 2006; 78 FR 61207, Oct. 3, 2013]

§ 87.477 Condition of grant for radionavigation land stations.

Radionavigation land stations may be designated by the FAA as part of the National Airspace System. Stations so designated will be required to serve the public under IFT conditions. This condition of grant is applicable to all radionavigation land stations.

§ 87.479 Harmful interference to radionavigation land stations.

(a) Military or other Government stations have been authorized to establish wide-band systems using frequency-hopping spread spectrum techniques in the 960–1215 MHz band. Authorization for a Joint Tactical Information Distribution Systems (JTIDS) has been permitted on the basis of non-interference to the established aeronautical radionavigation service in this band. In order to accommodate the requirements for the system within the band, restrictions are imposed. Transmissions will be automatically prevented if:

(1) The frequency-hopping mode fails to distribute the JTIDS spectrum uniformly across the band;

(2) The radiated pulse varies from the specified width of 6.4 microseconds ±5%;

(3) The energy radiated within ±7 MHz of 1030 and 1090 MHz exceeds a level of 60 dB below the peak of the JTIDS spectrum as measured in a 300 kHz bandwidth. The JTIDS will be prohibited from transmitting if the time slot duty factor exceeds a 20 percent duty factor for any single user and a 40 percent composite duty factor for all JTIDS emitters in a geographic area.

(b) If radionavigation systems operating in the 960–1215 MHz band experience interference or unexplained loss of equipment performance, the situation must be reported immediately to the nearest office of the FAA, the National Telecommunications and Information Administration, Washington, DC 20504, or the nearest Federal Communications Commission field office. The following information must be provided to the extent available:

(1) Name, call sign and category of station experiencing the interference;

(2) Date and time of occurrence;

(3) Geographical location at time of occurrence;

(4) Frequency interfered with;

(5) Nature of interference; and

(6) Other particulars.

§ 87.481 Unattended operation of domestic radiobeacon stations.

(a) Radiobeacons may be licensed for unattended operation. An applicant must comply with the following:

(1) The transmitter is crystal controlled and specifically designed for radiobeacon service and capable of transmitting by self-actuating means;

(2) The emissions of the transmitter must be continuously monitored by a licensed operator, or by a direct positive automatic monitor, supplemented by aural monitoring at suitable intervals;

(3) If as a result of aural monitoring it is determined that a deviation from the terms of the station license has occurred, the transmitters must be disabled immediately by a properly authorized person. If automatic monitoring is used, the monitor must insure that the operation of the transmitter meets the license terms or is disabled;

(4) A properly authorized person must be able to reach the transmitter and disable it in a reasonable amount

of time, so as not to adversely affect life or property in the air;

(5) The equipment must be inspected at least every 180 days. Results of inspections must be kept in the station maintenance records;

(6) The transmitter is not operable by or accessible to, other than authorized persons;

(7) The transmitter is in a remote location.

(b) Authority for unattended operation must be expressly stated in the station license.

[53 FR 28940, Aug. 1, 1988, as amended at 63 FR 68958, Dec. 14, 1998]

§ 87.483 Audio visual warning systems.

An audio visual warning system (AVWS) is a radar-based obstacle avoidance system. AVWS activates obstruction lighting and transmits VHF audible warnings to alert pilots of potential collisions with land-based obstructions. The AVWS operations are limited to locations where natural and man-made obstructions exist. The continuously operating radar calculates the location, direction and groundspeed of nearby aircraft that enter one of two warning zones reasonably established by the licensee. As aircraft enter the first warning zone, the AVWS activates obstruction lighting. If the aircraft continues toward the obstacle and enters the second warning zone, the VHF radio transmits an audible warning describing the obstacle.

(a) Radiodetermination (radar) frequencies. Frequencies authorized under § 87.475(b)(8) of this chapter are available for use by an AVWS. The frequency coordination requirements in § 87.475(a) of this chapter apply.

(b) VHF audible warning frequencies. Frequencies authorized under § 87.187(j), § 87.217(a), § 87.241(b), and § 87.323(b) (excluding 121.950 MHz) of this chapter are available for use by an AVWS. Multiple frequencies may be authorized for an individual station, depending on need and the use of frequencies assigned in the vicinity of a proposed AVWS facility. Use of these frequencies is subject to the following limitations:

(1) The output power shall not exceed −3 dBm watts for each frequency authorized.

(2) The antenna used in transmitting the audible warnings must be omnidirectional with a maximum gain equal to or lower than a half-wave centerfed dipole above 30 degrees elevation, and a maximum gain of +5 dBi from horizontal up to 30 degrees elevation.

(3) The audible warning shall not exceed two seconds in duration. No more than six audible warnings may be transmitted in a single transmit cycle, which shall not exceed 12 seconds in duration. An interval of at least twenty seconds must occur between transmit cycles.

[78 FR 61207, Oct. 3, 2013]

Subpart R [Reserved]

Subpart S—Automatic Weather Stations (AWOS/ASOS)

§ 87.525 Scope of service.

Automatic weather observation stations (AWOS) and automatic surface observation stations (ASOS) must provide up-to-date weather information including the time of the latest weather sequence, altimeter setting, wind speed and direction, dew point, temperature, visibility and other pertinent data needed at airports having neither a full-time control tower nor a full-time FAA Flight Service Station. When a licensee has entered into an agreement with the FAA, an AWOS or an ASOS may also operate as an automatic terminal information station (ATIS) during the control tower's operating hours.

[64 FR 27476, May 20, 1999]

§ 87.527 Supplemental eligibility.

(a) Licenses will be granted only upon FAA approval.

(b) Eligibility for an AWOS, an ASOS, or an ATIS is limited to the owner or operator of an airport or to a person who has entered into a written agreement with the owner or operator for exclusive rights to operate and maintain the station. Where applicable a copy of the agreement between the applicant and owner or operator of the airport must be submitted with an application.

(c) Only one AWOS, ASOS, or ATIS will be licensed at an airport.

[53 FR 28940, Aug. 1, 1988, as amended at 64 FR 27476, May 20, 1999]

§ 87.529 Frequencies.

Prior to submitting an application, each applicant must notify the applicable FAA Regional Frequency Management Office. Each application must be accompanied by a statement showing the name of the FAA Regional Office and date notified. The Commission will assign the frequency. Normally, frequencies available for air traffic control operations set forth in subpart E will be assigned to an AWOS, ASOS, or to an ATIS. When a licensee has entered into an agreement with the FAA to operate the same station as both an AWOS and as an ATIS, or as an ASOS and an ATIS, the same frequency will be used in both modes of operation.

[69 FR 52886, June 14, 2004]

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AUTHORITY: Sections 4(i), 11, 303(g), 303(r), and 332(c)(7) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 161, 303(g), 303(r), and 332(c)(7), and Title VI of the Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. 112–96, 126 Stat. 156.

SOURCE: 43 FR 54791, Nov. 22, 1978, unless otherwise noted.

Subpart A—General Information

§ 90.1 Basis and purpose.

(a) *Basis.* The rules in this part are promulgated under Title III of the Communications Act of 1934, as amended which vests authority in the Federal Communications Commission to regulate radio transmission and to issue licenses for radio stations. All rules in this part are in accordance with applicable treaties and agreements to which the United States is a party.

(b) *Purpose.* This part states the conditions under which radio communications systems may be licensed and used in the Public Safety, Industrial/Business Radio Pool, and Radiolocation Radio Services. These rules do not govern the licensing of radio systems belonging to and operated by the United States.

[43 FR 54791, Nov. 22, 1978, as amended at 65 FR 66650, Nov. 7, 2000]

§ 90.5 Other applicable rule parts.

Other Commission rule parts of importance that may be referred to with respect to licensing and operations in radio services governed under this part include the following:

(a) Part 0 of the Commission's Rules describes the Commission's organization and delegations of authority. This part also lists available Commission publications, and standards and procedures for access to Commission records, and location of Commission Field Offices.

(b) *Part 1* includes rules of practice and procedure for the filing of applications for stations to operate in the Wireless Telecommunications Services, adjudicatory proceedings including hearing proceedings, and rule making proceedings; procedures for reconsideration and review of the Commission's actions; provisions concerning violation notices and forfeiture proceedings; and the environmental processing requirements that, together with the procedures specified in § 17.4(c) of this chapter, if applicable, must be complied with prior to initiating construction.

(c) Part 2 contains the table of frequency allocations and special requirements in International regulations, agreements, and treaties. This part also contains standards and procedures concerning marketing of radio frequency devices, and for obtaining equipment certification.

(d) Part 5 contains standards and procedures for obtaining experimental authorizations.

(e) Part 15 provides for the operation of incidental and restricted radio frequency devices that do not require an individual license.

(f) *Part 17* contains requirements for construction, marking and lighting of antenna towers, and the environmental notification process that must be completed before filing certain antenna structure registration applications.

(g) Part 18 deals with the operation of industrial, scientific, and medical (ISM) devices that are not intended for radio communication,

(h) Part 20 contains rules relating to commercial mobile radio services.

(i) Part 20 which governs commercial mobile radio service applicable to certain providers in the following services in this part:

(1) Industrial/business pool.

(2) Private paging;

(3) Land mobile service on 220–222 MHz;

(4) Specialized Mobile Radio Service.

(j) Part 22 contains regulations for public (common carrier) mobile radio services.

(k) Part 27 contains rules relating to miscellaneous wireless communications services.

(l) Part 51 contains rules relating to interconnection.

(m) Part 68 contains technical standards for connection of private land mobile radio equipment to the public switched telephone network.

(n) Part 101 governs the operation of fixed microwave services.

[43 FR 54791, Nov. 22, 1978, as amended at 50 FR 39677, Sept. 30, 1985; 55 FR 20398, May 16, 1990; 58 FR 21407, Apr. 21, 1993; 59 FR 18499, Apr. 19, 1994; 59 FR 59957, Nov. 21, 1994; 61 FR 45635, Aug. 29, 1996; 63 FR 36608, July 7, 1998; 63 FR 68958, Dec. 14, 1998; 72 FR 35190, June 27, 2007; 72 FR 48858, Aug. 24, 2007; 77 FR 3955, Jan. 26, 2012]

§ 90.7 Definitions.

220 MHz service. The radio service for the licensing of frequencies in the 220–222 MHz band.

800 MHz Cellular System. In the 806–824 MHz/ 851–869 MHz band, a system that uses multiple, interconnected, multichannel transmit/receive cells capable of frequency reuse and automatic handoff between cell sites to serve a larger number of subscribers than is possible using non-cellular technology.

800 MHz High Density Cellular System. In the 806–824 MHz/ 851–869 MHz band, a high density cellular system is defined as a cellular system which:

(1) Has more than five overlapping interactive sites featuring hand-off capability; and

(2) Any one of such sites has an antenna height of less than 30.4 meters (100 feet) above ground level with an antenna height above average terrain (HAAT) of less than 152.4 meters (500 feet) and twenty or more paired frequencies.

900 MHz SMR MTA-based license or *MTA license*. A license authorizing the right to use a specified block of 900 MHz SMR spectrum within one of the

47 Major Trading Areas (''MTAs''), as embodied in Rand McNally's Trading Areas System MTA Diskette and geographically represented in the map contained in Rand McNally's Commercial Atlas & Marketing Guide (the ''MTA Map''), with the following exceptions and additions:

(1) Alaska is separated from the Seattle MTA and is licensed separately.

(2) Guam and the Northern Mariana Islands are licensed as a single MTA-like area.

(3) Puerto Rico and the United States Virgin Islands are licensed as a single MTA-like area.

(4) American Samoa is licensed as a single MTA-like area.

The MTA map is available for public inspection in the Reference Information Center (Room CY-A257), 445 12th Steet, SW., Washington, DC.

Antenna height above average terrain (AAT). Height of the center of the radiating element of the antenna above the average terrain. (See § 90.309(a)(4) for calculation method.)

Antenna height above sea level. The height of the topmost point of the antenna above mean sea level.

Antenna structure. Structure on which an antenna is mounted.

Assigned frequency. Center of a frequency band assigned to a station.

Assigned frequency band. The frequency band the center of which coincides with the frequency assigned to the station and the width of which equals the necessary bandwidth plus twice the absolute value of the frequency tolerance.

Authorized bandwidth. The frequency band, specified in kilohertz and centered on the carrier frequency containing those frequencies upon which a total of 99 percent of the radiated power appears, extended to include any discrete frequency upon which the power is at least 0.25 percent of the total radiated power.

Automobile emergency licensee. Persons regularly engaged in any of the following activities who operate radio stations for transmission of communications required for dispatching repair trucks, tow trucks, or other road service vehicles to disabled vehicles:

(1) The operation of a private emergency road service for disabled vehicles by associations of owners of private automobiles; or

(2) The business of providing to the general public an emergency road service for disabled vehicles.

Average terrain. The average elevation of terrain between 3.2 and 16 km (2 and 10 miles) from the antenna site.

Base station. A station at a specified site authorized to communicate with mobile stations.

Basic trading areas. Service areas that are based on the Rand McNally *1992 Commercial Atlas & Marketing Guide*, 123rd Edition, at pages 38–39, with the following additions licensed separately as BTA-like areas: American Samoa; Guam, Northern Mariana Islands; Mayaguez/Aguadilla-Ponce, Puerto Rico; San Juan, Puerto Rico; and the United States Virgin Islands. The Mayaguez/Aguadilla-Ponce BTA-like service area consists of the following municipios: Adjuntas, Aguada, Aguadilla, Anasco, Arroyo, Cabo Rojo, Coamo, Guanica, Guayama, Guayanilla, Hormigueros, Isabela, Jayuya, Juana Diaz, Lajas, Las Marias, Maricao, Maunabo, Mayaguez, Moca, Patillas, Penuelas, Ponce, Quebradillas, Rincon, Sabana Grande, Salinas, San German, Santa Isabel, Villalba, and Yauco. The San Juan BTA-like service area consists of all other municipios in Puerto Rico.

Carrier frequency. The frequency of an unmodulated electromagnetic wave.

Centralized trunked system. A system in which there is dynamic assignment of communications paths by automatically searching all communications paths in the system and assigning to a user an open communications path within that system. Individual communications paths within a trunked system may be classified as centralized or decentralized in accordance with the requirements of § 90.187.

Channel loading. The number of mobile transmitters authorized to operate on a particular channel within the same service area.

Communications zone. The service area associated with an individual fixed Roadside Unit (RSU). The communications zone is determined based on the RSU equipment class specified in section 90.375.

Contention-based protocol. A protocol that allows multiple users to share the

same spectrum by defining the events that must occur when two or more transmitters attempt to simultaneously access the same channel and establishing rules by which a transmitter provides reasonable opportunities for other transmitters to operate. Such a protocol may consist of procedures for initiating new transmissions, procedures for determining the state of the channel (available or unavailable), and procedures for managing retransmissions in the event of a busy channel. Contention-based protocols shall fall into one of two categories:

(1) An unrestricted contention-based protocol is one which can avoid co-frequency interference with devices using all other types of contention-based protocols.

(2) A restricted contention-based protocol is one that does not qualify as unrestricted.

Control point. Any place from which a transmitter's functions may be controlled.

Control station. An Operational Fixed Station, the transmissions of which are used to control automatically the emissions or operation of another radio station at a specified location.

Conventional radio system. A method of operation in which one or more radio frequency channels are assigned to mobile and base stations but are not employed as a trunked group. An ''urban-conventional system'' is one whose transmitter site is located within 24 km (15 miles) of the geographic center of any of the first 50 urbanized areas (ranked by population) of the United States. A ''sub-urban-conventional system'' is one whose transmitter site is located more than 24 km (15 miles) from the geographic center of the first 50 urbanized areas. See Table 21, Rank of Urbanized Areas in the United States by Population, page 1–87, U.S. Census (1970); and table 1 of §90.635.

Critical Infrastructure Industry (CII). State, local government and non-government entities, including utilities, railroads, metropolitan transit systems, pipelines, private ambulances, volunteer fire departments, and not-for-profit organizations that offer emergency road services, providing private internal radio services provided these private internal radio services are used to protect safety of life, health, or property; and are not made commercially available to the public.

Decentralized trunked system. A system which monitors the communications paths within its assigned channels for activity within and outside of the trunked system and transmits only when an available communications path is found. Individual communications paths within a trunked system may be classified as centralized or decentralized in accordance with the requirements of §90.187.

Dedicated Short-Range Communications Services (DSRCS). The use of radio techniques to transfer data over short distances between roadside and mobile units, between mobile units, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of environments. DSRCS systems may also transmit status and instructional messages related to the units involved.

Dispatch point. Any place from which radio messages can be originated under the supervision of a control point.

EA-based or EA license. A license authorizing the right to use a specified block of SMR or LMS spectrum within one of the 175 Economic Areas (EAs) as defined by the Department of Commerce Bureau of Economic Analysis. The EA Listings and the EA Map are available for public inspection at the Reference Information Center (Room CY-A257), 445 12th Steet, SW., Washington, DC 20554.

Economic Areas (EAs). A total of 175 licensing regions based on the United States Department of Commerce Bureau of Economic Analysis Economic Areas defined as of February 1995, with the following exceptions:

(1) Guam and Northern Mariana Islands are licensed as a single EA-like area (identified as *EA 173* in the 220 MHz Service);

(2) Puerto Rico and the U.S. Virgin Islands are licensed as a single EA-like area (identified as *EA 174* in the 220 MHz Service); and

(3) American Samoa is licensed as a single EA-like area (identified as *EA 175* in the 220 MHz Service).

Effective radiated power (ERP). The power supplied to an antenna multiplied by the relative gain of the antenna in a given direction.

Emergency medical licensee. Persons or entities engaged in the provision of basic or advanced life support services on an ongoing basis that operate radio stations for transmission of communications essential for the delivery or rendition of emergency medical services for the provision of basic or advanced life support.

Enhanced Specialized Mobile Radio System (ESMR). A specialized mobile radio (SMR) system operating in the 800 MHz band which employs an 800 MHz cellular system as defined in this section.

Film and video production licensee. Persons primarily engaged in or providing direct technical support to the production, videotaping, or filming of motion pictures or television programs, such as movies, programs, news programs, special events, educational programs, or training films, regardless of whether the productions are prepared primarily for final exhibition at theatrical outlets or on television or for distribution through other mass communications outlets.

Fire licensee. Any territory, possession, state, city, county, town, or similar governmental entity, and persons or organizations charged with specific fire protection activities that operate radio stations for transmission of communications essential to official fire activities.

First Responder Network Authority. An entity established by the Middle Class Tax Relief and Job Creation Act of 2012 as an independent authority within the National Telecommunications and Information Administration and designated by that statute to hold a nationwide license associated with the 758–769 MHz and 788–799 MHz bands for use in deploying a nationwide public safety broadband network.

Fixed relay station. A station at a specified site used to communicate with another station at another specified site.

Forest products licensee. Persons primarily engaged in tree logging, tree farming, or related woods operations, including related hauling activities, if the hauling activities are performed under contract to, and exclusively for, persons engaged in woods operations or engaged in manufacturing lumber, plywood, hardboard, or pulp and paper products from wood fiber.

Forward links. Transmissions in the frequency bands specified in § 90.357(a) and used to control and interrogate the mobile units to be located by multilateration LMS systems.

Frequency coordination. The process of obtaining the recommendation of a frequency coordinator for a frequency(ies) that will most effectively meet the applicant's needs while minimizing interference to licensees already operating within a given frequency band.

Frequency coordinator. An entity or organization that has been certified by the Commission to recommend frequencies for use by licensees in the Private Land Mobile Radio Services.

Geographic center. The geographic center of an urbanized area is defined by the coordinates given at table 1 of § 90.635.

Geophysical telemetry. Telemetry involving the simultaneous transmission of seismic data from numerous locations to a central receiver and digital recording unit.

Harmful interference. For the purposes of resolving conflicts between stations operating under this part, any emission, radiation, or induction which specifically degrades, obstructs, or interrupts the service provided by such stations.

Interconnection. Connection through automatic or manual means of private land mobile radio stations with the facilities of the public switched telephone network to permit the transmission of messages or signals between points in the wireline or radio network of a public telephone company and persons served by private land mobile radio stations. Wireline or radio circuits or links furnished by common carriers, which are used by licensees or other authorized persons for transmitter control (including dial-up transmitter control circuits) or as an integral part of an authorized, private, internal system of communication or as an integral part of dispatch point circuits in a private land mobile radio

station are not considered to be interconnection for purposes of this rule part.

Internal system. An internal system of communication is one in which all messages are transmitted between the fixed operating positions located on premises controlled by the licensee and the associated mobile stations or paging receivers of the licensee. (See subpart O).

Interoperability. An essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.

Itinerant operation. Operation of a radio station at unspecified locations for varying periods of time.

Land mobile radio service. A mobile service between base stations and land mobile stations, or between land mobile stations.

Land mobile radio system. A regularly interacting group of base, mobile and associated control and fixed relay stations intended to provide land mobile radio communications service over a single area of operation.

Land station. A station in the mobile service not intended to be used while in motion. [As used in this part, the term may be used to describe a base, control, fixed, operational fixed or fixed relay station, or any such station authorized to operate in the ''temporary'' mode.]

Line A. An imaginary line within the U.S., approximately paralleling the U.S.-Canadian border, north of which Commission coordination with the Canadian authorities in the assignment of frequencies is generally required. It begins at Aberdeen, Washington, running by great circle arc to the intersection of 48° N., 120° W., then along parallel 48° N., to the intersection of 95° W., thence by great circle arc through the southernmost point of Duluth, Minnesota, thence by great circle arc to 45° N., 85° W., thence southward along meridian 85° W. to its intersection with parallel 41° N., to its intersection with meridian 82° W., thence by great circle arc through the southernmost point of Bangor, Maine, thence by great circle arc through the southernmost of Searsport, Maine, at which point it terminates.

Line C. An imaginary line in Alaska approximately paralleling the border with Canada, East of which Commission coordination with Canadian authorities in the assignment of frequencies is generally required. It begins at the intersection of 70° N., 144° W., thence by great circle arc to the intersection of 60° N., 143° W., thence by great circle arc so as to include all the Alaskan Panhandle.

Location and Monitoring Service (LMS). The use of non-voice signaling methods to locate or monitor mobile radio units. LMS systems may transmit and receive voice and non-voice status and instructional information related to such units.

Major trading areas. Service areas based on the Rand McNally *1992 Commercial Atlas & Marketing Guide,* 123rd Edition, at pages 38–39, with the following exceptions and additions:

(a) Alaska is separated from the Seattle MTA and is licensed separately.

(b) Guam and the Northern Mariana Islands are licensed as a single MTA-like area.

(c) Puerto Rico and the United States Virgin Islands are licensed as a single MTA-like area.

(d) American Samoa is licensed as a single MTA-like area.

Manufacturers licensee. Persons primarily engaged in any of the following manufacturing activities:

(1) The mechanical or chemical transformation of substances into new products within such establishments as plants, factories, shipyards, or mills which employ, in that process, powerdriven machines and materials-handling equipment;

(2) The assembly of components of manufactured products within such establishments as plants, factories, shipyards, or mills where the new product is neither a new structure nor other fixed improvement. Establishments primarily engaged in the wholesale or retail trade, or in service activities, even though they fabricate or assemble any or all the products or commodities handled, are not included in this category; or

(3) The providing of supporting services or materials by a corporation to its parent corporation, to another subsidiary of its parent or to its own subsidiary, where such supporting services or materials are directly related to those regular activities of such parent or subsidiary which are eligible under paragraphs (1) or (2) of this definition.

Meteor burst communications. Communications by the propagation of radio signals reflected off ionized meteor trails.

Mobile relay station. A base station in the mobile service authorized to retransmit automatically on a mobile service frequency communications which originate on the transmitting frequency of the mobile station.

Mobile repeater station. A mobile station authorized to retransmit automatically on a mobile service frequency, communications to or from hand-carried transmitters.

Mobile service. A service of radiocommunication between mobile and base stations, or between mobile stations.

Mobile station. A station in the mobile service intended to be used while in motion or during halts at unspecified points. This includes hand carried transmitters.

Motor carrier licensee. Persons primarily engaged in providing a common or contract motor carrier transportation service in any of the following activities: Provided, however, that motor vehicles used as taxicabs, livery vehicles, or school buses, and motor vehicles used for sightseeing or special charter purposes, shall not be included within the meaning of this term. For purposes of this definition, an urban area is defined as being one or more contiguous, incorporated or unincorporated cities, boroughs, towns, or villages, having an aggregate population of 2,500 or more persons.

(1) The transportation of passengers between urban areas;

(2) The transportation of property between urban areas;

(3) The transportation of passengers within a single urban area; or

(4) The transportation, local distribution or collection of property within a single urban area.

MTA-based license or MTA license. A license authorizing the right to use a specified block of SMR spectrum within one of the 51 Major Trading Areas (''MTAs''), as embodied in Rand McNally's Trading Area System MTA Diskette and geographically represented in the map contained in Rand McNally's Commercial Atlas & Marketing Guide (the ''MTA Map''). The MTA Listings, the MTA Map and the Rand McNally/AMTA license agreement are available for public inspection at the Reference Information Center in the Consumer and Governmental Affairs Bureau.

Multilateration LMS system. A system that is designed to locate vehicles or other objects by measuring the difference of time of arrival, or difference in phase, of signals transmitted from a unit to a number of fixed points or from a number of fixed points to the unit to be located.

Mutually exclusive application. Two or more pending applications are mutually exclusive if the grant of one application would effectively preclude the grant of one or more of the others under Commission rules governing the services involved.

Non-multilateration LMS System. A system that employs any of a number of non-multilateration technologies to transmit information to and/or from vehicular units.

On-Board unit (OBU). An On-Board Unit is a DSRCS transceiver that is normally mounted in or on a vehicle, or which in some instances may be a portable unit. An OBU can be operational while a vehicle or person is either mobile or stationary. The OBUs receive and contend for time to transmit on one or more radio frequency (RF) channels. Except where specifically excluded, OBU operation is permitted wherever vehicle operation or human passage is permitted. The OBUs mounted in vehicles are licensed by rule under part 95 of this chapter and communicate with Roadside Units (RSUs) and other OBUs. Portable OBUs are also licensed by rule under part 95 of this chapter. OBU operations in the Unlicensed National Information Infrastructure (UNII) Bands follow the rules in those bands.

Operational fixed station. A fixed station, not open to public correspondence, operated by, and for the sole use of those agencies operating their own radiocommunication facilities in the Public Safety, Industrial, Land Transportation, Marine, or Aviation Radio Services. (This includes all stations in the fixed service under this part.)

Output power. The radio frequency output power of a transmitter's final radio frequency stage as measured at the output terminal while connected to a load of the impedance recommended by the manufacturer.

Paging. A one-way communications service from a base station to mobile or fixed receivers that provide signaling or information transfer by such means as tone, tone-voice, tactile, optical readout, etc.

Person. An individual, partnership, association, joint stock company, trust or corporation.

Petroleum licensee. Persons primarily engaged in prospecting for, producing, collecting, refining, or transporting by means of pipeline, petroleum or petroleum products (including natural gas).

Police licensee. Any territory, possession, state, city, county, town, or similar governmental entity including a governmental institution authorized by law to provide its own police protection that operate radio stations for transmission of communications essential to official police activities.

Power licensee. Persons primarily engaged in any of the following activities:

(1) The generation, transmission, or distribution of electrical energy for use by the general public or by the members of a cooperative organization;

(2) The distribution of manufactured or natural gas by means of pipe line, for use by the general public or by the members of a cooperative organization, or, in a combination of that activity with the production, transmission or storage of manufactured or natural gas preparatory to such distribution;

(3) The distribution of steam by means of pipeline or, of water by means of pipeline, canal, or open ditch, for use by the general public or by the members of a cooperative organization, or in a combination of that activity with the collection, transmission, storage, or purification of water or the generation of steam preparatory to such distribution; or

(4) The providing of a supporting service by a corporation directly related to activities of its parent corporation, of another subsidiary of the same parent, or of its own subsidiary, where the party served is regularly engaged in any of the activities set forth in this definition.

Private carrier. An entity licensed in the private services and authorized to provide communications service to other private services on a commercial basis.

Radio call box. A transmitter used by the public to request fire, police, medical, road service, or other emergency assistance.

Radio teleprinting. Radio transmissions to a printing telegraphic instrument having a signal-actuated mechanism for automatically printing received messages.

Radiodetermination. The determination of position, or the obtaining of information relating to position, by means of the propagation of radio waves.

Radiofacsimile. A system of radiocommunication for the transmission of fixed images, with or without halftones, with a view to their reproduction in a permanent form.

Radiolocation. Radiodetermination used for purposes other than those of radionavigation.

Radionavigation. Radiodetermination used for the purposes of navigation, including obstruction warning.

Railroad licensee. Railroad common carriers which are regularly engaged in the transportation of passengers or property when such passengers or property are transported over all or part of their route by railroad.

Regional Economic Area Groupings (REAGs). The six geographic areas for Regional licensing in the 220–222 MHz band, based on the United States Department of Commerce Bureau of Economic Analysis Economic Areas (see 60 FR 13114 (March 10, 1995)) defined as of February 1995, and specified as follows:

REAG 1 (Northeast): REAG 1 consists of the following EAs: EA 001 (Bangor, ME) through EA 011 (Harrisburg-Lebanon-Carlisle, PA); and EA 054 (Erie, PA).

REAG 2 (Mid-Atlantic): REAG 2 consists of the following EAs: EA 012 (Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD) through EA 026 (Charleston-North Charleston, SC); EA 041 (Greenville-Spartanburg-Anderson, SC-NC); EA 042 (Asheville, NC); EA 044 (Knoxville, TN) through EA 053 (Pittsburgh, PA-WV); and EA 070 (Louisville, KY-IN).

REAG 3 (Southeast): REAG 3 consists of the following EAs: EA 027 (Augusta-Aiken, GA-SC) through EA 040 (Atlanta, GA-AL-NC); EA 043 (Chattanooga, TN-GA); EA 069 (Evansville-Henderson, IN-KY-IL); EA 071 (Nashville, TN-KY) through EA 086 (Lake Charles, LA); EA 088 (Shreveport-Bossier City, LA-AR) through EA 090 (Little Rock-North Little Rock, AR); EA 095 (Jonesboro, AR-MO); EA 096 (St. Louis, MO-IL); and EA 174 (Puerto Rico and the U.S. Virgin Islands).

REAG 4 (Great Lakes): REAG 4 consists of the following EAs: EA 055 Cleveland-Akron, OH-PA) through EA 068 (Champaign-Urbana, IL); EA 097 (Springfield, IL-MO); and EA 100 (Des Moines, IA-IL-MO) through EA 109 (Duluth-Superior, MN-WI).

REAG 5 (Central/Mountain): REAG 5 consists of the following EAs: EA 087 (Beaumont-Port Arthur, TX); EA 091 (Forth Smith, AR-OK) through EA 094 (Springfield, MO); EA 098 (Columbia, MO); EA 099 (Kansas City, MO-KS); EA 110 (Grand Forks, ND-MN) through EA 146 (Missoula, MT); EA 148 (Idaho Falls, ID-WY); EA 149 (Twin Falls, ID); EA 152 (Salt Lake City-Ogden, UT-ID); and EA 154 (Flagstaff, AZ-UT) through EA 159 (Tucson, AZ).

REAG 6 (Pacific): REAG 6 consists of the following EAs: EA 147 (Spokane, WA-ID); EA 150 (Boise City, ID-OR); EA 151 (Reno, NV-CA); EA 153 (Las Vegas, NV-AZ-UT); EA 160 (Los Angeles-Riverside-Orange County, CA-AZ) through EA 173 (Guam and the Northern Mariana Islands); and EA 175 (American Samoa).

Regional license. A license authorizing the right to use a specified block of 220–222 MHz spectrum within one of six Regional Economic Area Groupings (REAGs).

Relay press licensee. Persons primarily engaged in the publication of a newspaper or in the operation of an established press association.

Roadside unit (RSU). A Roadside Unit is a DSRC transceiver that is mounted along a road or pedestrian passageway. An RSU may also be mounted on a vehicle or is hand carried, but it may only operate when the vehicle or hand-carried unit is stationary. Furthermore, an RSU operating under this part is restricted to the location where it is licensed to operate. However, portable or hand-held RSUs are permitted to operate where they do not interfere with a site-licensed operation. A RSU broadcasts data to OBUs or exchanges data with OBUs in its communications zone. An RSU also provides channel assignments and operating instructions to OBUs in its communications zone, when required.

Roadway bed surface. For DSRCS, the road surface at ground level.

Secondary operation. Radio communications which may not cause interference to operations authorized on a primary basis and which are not protected from interference from those primary operations.

Service availability. The use of a public safety broadband network on a day-to-day basis for operational purposes by at least fifty users.

Signal amplifier. A device that amplifies radio frequency signals and is connected to a mobile radio transceiver, portable or handset, typically to the antenna connector. Note that a signal amplifier is not the same thing as a signal booster.

Signal booster. A device at a fixed location which automatically receives, amplifies, and retransmits on a one-way or two-way basis, the signals received from base, fixed, mobile, and portable stations, with no change in frequency or authorized bandwidth. A signal booster may be either narrowband (Class A), in which case the booster amplifies only those discrete frequencies intended to be retransmitted, or broadband (Class B), in which case all signals within the passband of the signal booster filter are amplified.

SMSA (Standard Metropolitan Statistical Area). A city of 50,000 or more population and the surrounding counties.

Special industrial licensee. Persons regularly engaged in any of the following activities:

(1) The operation of farms, ranches, or similar land areas, for the quantity production of crops or plants; vines or trees (excluding forestry operations); or for the keeping, grazing or feeding of livestock for animal products, animal increase, or value enhancement;

(2) Plowing, soil conditioning, seeding, fertilizing, or harvesting for agricultural activities;

(3) Spraying or dusting of insecticides, herbicides, or fungicides, in areas other than enclosed structures;

(4) Livestock breeding service;

(5) The operation of a commercial business regularly engaged in the construction of roads, bridges, sewer systems, pipelines, airfields, or water, oil, gas, or power production, collection, or distribution systems. The construction of buildings is not included in this category;

(6) The operation of mines for the recovery of solid fuels, minerals, metal, rock, sand and gravel from the earth or the sea, including the exploration for and development of mining properties;

(7) Maintaining, patrolling or repairing gas or liquid transmission pipelines, tank cars, water or waste disposal wells, industrial storage tanks, or distribution systems of public utilities;

(8) Acidizing, cementing, logging, perforating, or shooting activities, and services of a similar nature incident to the drilling of new oil or gas wells, or the maintenance of production from established wells;

(9) Supplying chemicals, mud, tools, pipe, and other materials or equipment unique to the petroleum and gas production industry, as the primary activity of the applicant if delivery, installation or application of these materials requires the use of specifically fitted conveyances;

(10) The delivery of ice or fuel to the consumer for heating, lighting, refrigeration or power generation purposes, by means other than pipelines or railroads when such products are not to be resold following their delivery; or

(11) The delivery and pouring of ready mixed concrete or hot asphalt mix.

Specialized Mobile Radio system. A radio system in which licensees provide land mobile communications services (other than radiolocation services) in the 800 MHz and 900 MHz bands on a commercial basis to entities eligible to be licensed under this part, Federal Government entities, and individuals.

State. Any of the 50 United States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the U.S. Virgin Islands, American Samoa, and Guam.

Station authorization. A license issued by the Commission for the operation of a radio station.

Taxicab licensee. Persons regularly engaged in furnishing to the public for hire a nonscheduled passenger land transportation service (which may also include the occasional transport of small items of property) not operated over a regular route or between established terminals.

Telecommand. The transmission of non-voice signals for the purpose of remotely controlling a device.

Telemetering (also telemetry). The transmission of non-voice signals for the purpose of automatically indicating or recording measurements at a distance from the measuring instrument.

Telephone maintenance licensee. Communications common carriers engaged in the provision of landline local exchange telephone service, or inter-exchange communications service, and radio communications common carriers authorized under part 21 of this chapter. Resellers that do not own or control transmission facilities are not included in this category.

Travelers' information station. A base station in the Public Safety Pool used to transmit non-commercial, voice information pertaining to traffic and road conditions, traffic hazard and traveler advisories, directions, availability of lodging, rest stops, and service stations, and descriptions of local points of interest.

Trunk group. All of the trunks of a given type of characteristic that extend between two switching points.

Trunk (telephony). A one or two-way channel provided as a common traffic artery between switching equipment.

Trunked radio system. A radio system employing technology that provides the ability to search two or more available communications paths and automatically assigns an open communications path to a user.

Universal Licensing System (ULS). The consolidated database, application filing system and processing system for

all Wireless Telecommunications Services. The ULS offers Wireless Telecommunications Bureau (WTB) applicants and the general public electronic filing of all applications requests, and full public access to all WTB licensing data.

Urbanized area. A city and the surrounding closely settled territories.

[43 FR 54791, Nov. 22, 1978]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.7, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

Subpart B—Public Safety Radio Pool

SOURCE: 62 FR 18845, Apr. 17, 1997, unless otherwise noted.

§ 90.15 Scope.

The Public Safety Radio Pool covers the licensing of the radio communications of governmental entities and the following category of activities: Medical services, rescue organizations, veterinarians, persons with disabilities, disaster relief organizations, school buses, beach patrols, establishments in isolated places, communications standby facilities, and emergency repair of public communications facilities. Entities not meeting these eligibility criteria may also be licensed in the Public Safety Radio Pool solely to provide service to eligibles on one-way paging-only frequencies below 800 MHz, *i.e.*, those frequencies with the assignment limitations appearing at § 90.20(d)(13) or (d)(60). Private carrier systems licensed on other channels prior to June 1, 1990, may continue to provide radio communications service to eligibles. Rules as to eligibility for licensing, frequencies available, permissible communications and classes and number of stations, and any special requirements are set forth in the following sections.

§ 90.16 Public Safety National Plan.

The Commission has established a National Plan which specifies special policies and procedures governing the Public Safety Pool (formally Public Safety Radio Services and the Special Emergency Radio Service). The National Plan is contained in the Report and Order in General Docket No. 87–112. The principal spectrum resource for the National Plan is the 806–809 MHz and the 851–854 MHz bands at locations farther then 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border (''border regions''). In the border regions, the principal spectrum for the National Plan may be different. The National plan establishes planning regions covering all parts of the United States, Puerto Rico, and the U.S. Virgin Islands. No assignments will be made in the spectrum designated for the National Plan until a regional plan for the area has been accepted by the Commission.

[69 FR 67837, Nov. 22, 2004]

§ 90.19 Nationwide Public Safety Broadband Network.

Pursuant to the Middle Class Tax Relief and Job Creation Act of 2012, Public Law 112–96, 126 Stat. 156 (2012), the 758–769 MHz and 788–799 MHz bands are allocated for use by the First Responder Network Authority to deploy a nationwide public safety broadband network as prescribed by statute.

[77 FR 62462, Oct. 15, 2012]

§ 90.20 Public Safety Pool.

(a) *Eligibility*. The following are eligible to hold authorizations in the Public Safety Pool.

(1) Any territory, possession, state, city, county, town or similar governmental entity is eligible to hold authorizations in the Public Safety Pool to operate radio stations for transmission of communications essential to official activities of the licensee, including:

(i) A district and an authority;

(ii) A governmental institution authorized by law to provide its own police protection;

(iii) Persons or entities engaged in the provision of basic or advanced life support services on an ongoing basis are eligible to hold authorization to operate stations for transmission of communications essential for the delivery or rendition of emergency medical services for the provision of basic or advanced life support. Applications

submitted by persons or organizations (governmental or otherwise) other than the governmental body having jurisdiction over the state's emergency medical service plans must be accompanied by a statement prepared by the governmental body having jurisdiction over the state's emergency medical services plan indicating that the applicant is included in the state's emergency plan or otherwise supporting the application;

(iv) Governmental entities and governmental agencies for their own medical activities; and

(v) Governmental entities and governmental agencies for providing medical services communications to other eligible persons through direct participation in and direct operational control of the system, such as through central dispatch service.

(2) Persons or organizations other than governmental entities are eligible to hold authorizations in the Public Safety Pool to operate radio stations for transmission of communications, as listed below. When requesting frequencies not designated by a ''PS'' in the coordinator column of the frequency table in paragraph (c)(3) of this section, applications must be accompanied by a statement from the governmental entity having legal jurisdiction over the area to be served, supporting the request:

(i) Persons or organizations charged with specific fire protection activities;

(ii) Persons or organizations charged with specific forestry-conservation activities;

(iii) Persons or organizations, listed below, engaged in the delivery or rendition of medical services to the public and on a secondary basis, for transmission of messages related to the efficient administration of organizations and facilities engaged in medical services operations:

(A) Hospital establishments that offer services, facilities, and beds for use beyond 24 hours in rendering medical treatment;

(B) Institutions and organizations regularly engaged in providing medical services through clinics, public health facilities, and similar establishments;

(C) Ambulance companies regularly engaged in providing medical ambulance services;

(D) Rescue organizations for the limited purpose of participation in providing medical services;

(E) Associations comprised of two or more of the organizations eligible under paragraph (a)(2)(iii) (A), (B), (C), and (D) of this section, for the purpose of active participation in and direct operational control of the medical services communication activities of such organizations; or

(F) Physicians, schools of medicine, oral surgeons, and associations of physicians or oral surgeons;

(iv) Persons or organizations operating a rescue squad for transmission of messages pertaining to the safety of life or property and urgent messages necessary for the rendition of an efficient emergency rescue service.

(A) Each rescue squad will normally be authorized to operate one base station, and a number of mobile units (excluding hand carried mobile units) not exceeding the number of vehicles actually used in emergency rescue operations.

(B) In addition, each rescue squad will be authorized to operate a number of hand carried mobile units not exceeding two such units for each radio equipped vehicle actually used in emergency rescue operations.

(v) *Persons with disabilities*. The initial application from a person claiming eligibility under this paragraph shall be accompanied by a statement from a physician attesting to the condition of the applicant or the applicant's child (or ward in case of guardianship).

(A) Any person having a hearing deficiency such that average hearing threshold levels are 90 dB above ANSI (American National Standards Institute) 1969 or ISO (International Standards Organization) 1964 levels and such other persons who submit medical certification of similar hearing deficiency.

(B) Any person having visual acuity corrected to no better than 20/200 in the better eye or having a field of vision of less than 20 degrees.

(C) Any person, who, through loss of limbs or motor function, is confined to a wheelchair, or is non-ambulatory.

(D) Any person actively awaiting an organ transplant.

(E) Parents or guardians of persons under 18 years eligible under paragraphs (a)(2)(v)(A), (a)(2)(v)(B), (a)(2)(v)(C) of this section, or institutions devoted to the care or training of those persons.

(vi) A veterinarian, veterinary clinic, or a school of veterinary medicine for the transmission of messages pertaining to the care and treatment of animals. Each licensee may be authorized to operate one base station and two mobile units. Additional base stations or mobile units will be authorized only on a showing of need.

(vii) Organizations established for disaster relief purposes having an emergency radio communications plan for the transmission of communications relating to the safety of life or property, the establishment and maintenance of temporary relief facilities, and the alleviation of the emergency situation during periods of actual or impending emergency, or disaster, and until substantially normal conditions are restored. In addition, the stations may be used for training exercises, incidental to the emergency communications plan, and for operational communications of the disaster relief organization or its chapter affiliates. The initial application from a disaster relief organization shall be accompanied by a copy of the charter or other authority under which the organization was established and a copy of its communications plan. The plan shall fully describe the operation of the radio facilities and describe the method of integration into other communications facilities which normally would be available to assist in the alleviation of the emergency condition.

(viii) Persons or organizations operating school buses on a regular basis over regular routes for the transmission of messages pertaining to either the efficient operation of the school bus service or the safety or general welfare of the students they are engaged in transporting. Each school bus operator may be authorized to operate one base station and a number of mobile units not in excess of the total of the number of buses and maintenance vehicles regularly engaged in the school bus operation. Additional base stations or mobile units will be authorized only in exceptional circumstances when the applicant can show a specific need.

(ix) Persons or organizations operating beach patrols having responsibility for life-saving activities for the transmission of messages required for the safety of life or property.

(x) Persons or organizations maintaining establishment in isolated areas where public communications facilities are not available and where the use of radio is the only feasible means of establishing communication with a center of population, or other point from which emergency assistance might be obtained if needed, for the transmission of messages only during an actual or impending emergency endangering life, health or property for the transmission of essential communications arising from the emergency. The transmission of routine or non-emergency communications is strictly prohibited.

(A) *Special eligibility showing*. The initial application requesting a station authorization for an establishment in an isolated area shall be accompanied by a statement describing the status of public communication facilities in the area of the applicant's establishment; the results of any attempts the applicant may have made to obtain public communication service, and; in the event radio communications service is to be furnished under paragraph (a)(2)(x)(C)(*2*) of this section, a copy of the agreement involved must be submitted.

(B) *Class and number of stations available*. Persons or organizations in this category may be authorized to operate not more than one fixed station at any isolated establishment and not more than one fixed station in a center of population.

(C) *Communication service rendered and received*. (*1*) The licensee of a station at any establishment in an isolated area shall make the communication facilities of such station available at no charge to any person desiring the transmission of any communication permitted by paragraph (a) of this section.

(*2*) For the purpose of providing the communications link desired the licensee of a station at an establishment in an isolated area either may be the licensee of a similar station at another location or may obtain communication service under a mutual agreement from the licensee of any station in the Public Safety Pool or any other station which is authorized to communicate with the fixed station.

(xi) A communications common carrier operating communications circuits that normally carry essential communication of such a nature that their disruption would endanger life or public property is eligible to hold authorizations for standby radio facilities for the transmission of messages only during periods when the normal circuits are inoperative due to circumstances beyond the control of the user. During such periods the radio facilities may be used to transmit any communication which would be carried by the regular circuit. Initial applications for authorization to operate a standby radio facility must include a statement describing radio communication facilities desired, the proposed method of operation, a description of the messages normally being carried, and an explanation of how their disruption will endanger life or public property.

(xii) Communications common carriers for radio facilities to be used in effecting expeditious repairs to interruption of public communications facilities where such interruptions have resulted in disabling intercity circuits or service to a multiplicity of subscribers in a general area. Stations authorized under this section may be used only when no other means of communication is readily available, for the transmission of messages relating to the safety of life and property and messages which are necessary for the efficient restoration of the public communication facilities which have been disrupted.

(xiii) Persons or entities engaged in the provision of basic or advanced life support services on an ongoing basis are eligible to hold authorization to operate stations for transmission of communications essential for the delivery or rendition of emergency medical services for the provision of basic or advanced life support. Applications submitted by persons or organizations (governmental or otherwise) other than the governmental body having jurisdiction over the state's emergency medical service plans must be accompanied by a statement prepared by the governmental body having jurisdiction over the state's emergency medical services plan indicating that the applicant is included in the state's emergency plan or otherwise supporting the application.

(b) *International police radiocommunication*. Police licensees which are located in close proximity to the borders of the United States may be authorized to communicate internationally. Request for such authority shall be written and signed and submitted in duplicate. The request shall include information as to the station with which communication will be conducted, and the frequency, power, emission, etc., that will be used. If authorized, such international communication must be conducted in accordance with Article 5 of the Inter-American Radio Agreement, Washington, DC, 1949, which reads as follows:

Article 5. *Police radio stations*. When the American countries authorize their police radio stations to exchange emergency information by radio with similar stations of another country, the following rules shall be applied.

(a) Only police radio stations located close to the boundaries of contiguous countries shall be allowed to exchange this information.

(b) In general, only important police messages shall be handled, such as those which would lose their value, because of slowness and time limitations if sent on other communication systems.

(c) Frequencies used for radiotelephone communications with mobile police units shall not be used for radiotelegraph communications.

(d) Radiotelephone communications shall be conducted only on frequencies assigned for radiotelephony.

(e) Radiotelegraph communications shall be conducted on the following frequencies: 2804 kHz calling, 2808 kHz working, 2812 kHz working, 5195 kHz day calling, 5185 kHz day working, 5140 kHz day working.

(f) The characteristics of police radio stations authorized to exchange information shall be notified to the International Telecommunication Union, Geneva, Switzerland.

(g) The abbreviations contained in Appendix 9 of the Atlantic City Radio Regulations shall be used to the greatest possible extent. Service indications are as follows: ''P'', priority, for messages that are to be sent immediately, regardless of the number of other messages on file. If no service indication is given, the messages are to be transmitted in the order of receipt.

(h) The message shall contain the preamble, address, text and signature, as follows:

Preamble. The preamble of the message shall consist of the following: The serial number preceded by the letters ''NR'', service indications, as appropriate; the group count according to standard cable count system; the letters ''CK'', followed by numerals indicating the number of words contained in the text of the message: Office and country of origin (not abbreviations): Day, month, and hour of filing;

Address. The address must be as complete as possible and shall include the name of the addressee with any supplementary particulars necessary for immediate delivery of the message;

Text. The text may be either in plain language or code;

Signature. The signature shall include the name and title of the person originating the message.

(c) *Public Safety frequencies*. (1) The following table indicates frequencies available for assignment to Public Safety stations, together with the class of station(s) to which they are normally assigned, the specific assignment limitations which are explained in paragraph (d) of this section, and the certified frequency coordinator for each frequency:

(2)(i) The letter symbol(s) listed in the Coordinator column of the frequency table in paragraph (c)(3) of this section specifies the frequency coordinator(s) for each frequency as follows:

PF—Fire Coordinator
PH—Highway Maintenance Coordinator
PM—Emergency Medical Coordinator
PO—Forestry-Conservation Coordinator
PP—Police Coordinator
PS—Special Emergency Coordinator
PX—Any Public Safety Coordinator, except the Special Emergency Coordinator

(ii) Frequencies without any coordinator specified may be coordinated by any coordinator certified in the Public Safety Pool.

(3) *Frequencies*.

PUBLIC SAFETY POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator
Kilohertz			
530 to 1700	Base (T.I.S.)	1	PX
1610	Base (T.I.S.)	1	PX
1722	do	2, 3	PP
1730	do	2, 3	PP
2212	do	4	PO
2226	do	4	PO
2236	do	4	PO
2244	do	4	PO
2366	do	2, 4	PP
2382	do	2	PP
2390	do	2, 4	PP
2406	do	2	PP
2430	do	2	PP
2442	do	2	PP
2450	do	2	PP
2458	do	2	PP
2482	do	2	PP
2490	do	2, 3	PP
2726	do	5	PX, PS
3201	do		PS
2000 to 3000	Fixed	75	PS
2000 to 10,000	Fixed, base, or mobile.	6, 89	PX.
Megahertz			
30.86	Base or mobile	7	PO
30.90	do	7	PO
30.94	do	7	PO
30.98	do	7	PO
31.02	do	7	PO
31.06	do	7, 8, 9	PO
31.10	do	7, 8, 9	PO
31.14	do	7, 8, 9	PO
31.18	do	8, 9	PO
31.22	do	8, 9	PO
31.26	do	8, 9	PO
31.30	do	8, 9	PO
31.34	do	8, 9	PO
31.38	do	8, 9	PO
31.42	do	8, 9	PO
31.46	do	8, 9	PO
31.50	do	8, 9	PO
31.54	do	8, 9	PO
31.58	do	8, 9	PO
31.62	do	8, 9	PO
31.66	do	8, 9	PO
31.70	do	8, 9	PO
31.74	do	8, 9	PO
31.78	do	8, 9	PO
31.82	do	8, 9	PO
31.86	do	8, 9	PO
31.90	do	8, 9	PO
31.94	do	8, 9	PO
31.98	do	8, 9	PO
33.02	do	10	PH, PS
33.04	do		PS
33.06	do	10	PH, PS
33.08	do		PS
33.10	do	10	PH, PS
33.42	Mobile or fixed	11	PF
33.44	Base or mobile		PF
33.46	Mobile		PF
33.48	Base or mobile		PF
33.50	Mobile		PF
33.52	Base or mobile		PF
33.54	Mobile		PF
33.56	Base or mobile		PF
33.58	Mobile		PF
33.60	Base or mobile		PF

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
33.62	Mobile		PF
33.64	Base or mobile		PF
33.66	Mobile		PF
33.68	Base or mobile		PF
33.70	do		PF
33.72	do		PF
33.74	do		PF
33.76	do		PF
33.78	do		PF
33.80	do		PF
33.82	do		PF
33.84	do		PF
33.86	do		PF
33.88	do		PF
33.90	do		PF
33.92	do		PF
33.94	do		PF
33.96	do		PF
33.98	do		PF
35.02	Mobile	12, 78	PS
35.64	Base	13	PS
35.68	do	13	PS
37.02	Mobile		PP
37.04	Base or mobile		PP
37.06	do		PP
37.08	do		PP
37.10	do		PX
37.12	do		PP
37.14	do		PP
37.16	do		PP
37.18	do		PX
37.20	do		PP
37.22	do		PP
37.24	do		PP
37.26	do		PX
37.28	do		PP
37.30	do		PP
37.32	do		PP
37.34	Mobile		PP
37.36	Base or mobile		PP
37.38	Mobile		PP
37.40	Base or mobile		PP
37.42	Mobile		PP
37.90	Base or mobile	10	PH, PS
37.92	do		PH
37.94	do	10	PH, PS
37.96	do		PH
37.98	do	10	PH, PS
39.02	do		PP
39.04	do		PP
39.06	do	14	PX
39.08	do		PP
39.10	do		PX
39.12	do		PP
39.14	do		PP
39.16	do		PP
39.18	do		PX
39.20	do		PP
39.22	do		PP
39.24	do		PP
39.26	Mobile		PP
39.28	Base or mobile		PP
39.30	Mobile		PP
39.32	Base or mobile		PP
39.34	Mobile		PP
39.36	Base or mobile		PP
39.38	Mobile		PP
39.40	Base or mobile		PP
39.42	do		PP
39.44	do		PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
39.46	do	15	PP
39.48	do		PP
39.50	do		PX
39.52	do		PP
39.54	do		PP
39.56	do		PP
39.58	do		PX
39.60	do		PP
39.62	do		PP
39.64	do		PP
39.66	Mobile		PP
39.68	Base or mobile		PP
39.70	Mobile		PP
39.72	Base or mobile		PP
39.74	Mobile		PP
39.76	Base or mobile		PP
39.78	Mobile		PP
39.80	Base or mobile		PP
39.82	do		PX
39.84	do		PP
39.86	do		PP
39.88	do		PP
39.90	do		PX
39.92	do		PP
39.94	do		PP
39.96	do		PP
39.98	do		PX
42.02	do	2, 3, 16	PP
42.04	do	2, 3, 16	PP
42.06	do	2, 3, 16	PP
42.08	do	2, 3, 16	PP
42.10	do	2, 3, 16	PP
42.12	do	2, 3, 16	PP
42.14	do	2, 3, 16	PP
42.16	do	2, 3, 16	PP
42.18	Mobile	2, 16	PP
42.20	do	2, 16	PP
42.22	do	2, 16	PP
42.24	do	2, 16	PP
42.26	do	2, 16	PP
42.28	do	2, 16	PP
42.30	do	2, 16	PP
42.32	Base or mobile	2, 3, 16	PP
42.34	do	2, 3, 16	PP
42.36	do	2, 3, 16	PP
42.38	do	2, 3, 16	PP
42.40	do	2, 3, 16, 17.	PP
42.42	do	2, 3, 16	PP
42.44	do	2, 3, 16	PP
42.46	do	2, 3, 16	PP
42.48	do	2, 3, 16	PP
42.50	do	2, 3, 16	PP
42.52	do	2, 3, 16	PP
42.54	do	2, 3, 16	PP
42.56	do	2, 3, 16	PP
42.58	do	2, 3, 16	PP
42.60	do	2, 3, 16	PP
42.62	do	2, 3, 16	PP
42.64	do	2, 3, 16	PP
42.66	Mobile	2, 16	PP
42.68	do	2, 16	PP
42.70	do	2, 16	PP
42.72	do	2, 16	PP
42.74	do	2, 16	PP
42.76	do	2, 16	PP
42.78	do	2, 16	PP
42.80	Base or mobile	13	PP
42.82	do	2, 3, 16	PP
42.84	do	2, 3, 16	PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
42.86	do	2, 3, 16	PP
42.88	do	2, 3, 16	PP
42.90	do	2, 3, 16	PP
42.92	do	2, 3, 16	PP
42.94	do	2, 3, 16	PP
43.64	Base	13, 18	PS
43.68	do	13	PS
44.62	Base or mobile	2, 3, 16	PP
44.64	do		PO
44.66	do	2, 3, 16	PP
44.68	do		PO
44.70	do	2, 3, 16	PP
44.72	do		PO
44.74	do	2, 3, 16	PP
44.76	do		PO
44.78	Mobile	2, 16	PP
44.80	Base or mobile		PO
44.82	Mobile	2, 16	PP
44.84	Base or mobile		PO
44.86	Mobile	2, 16	PP
44.88	Base or mobile		PO
44.90	Mobile	2, 16	PP
44.92	Base or mobile		PO
44.94	do	2, 3, 16	PP
44.96	do		PO
44.98	do	2, 3, 16	PP
45.00	do		PO
45.02	do	2, 3, 16	PP
45.04	do		PO
45.06	do	2, 3, 16	PP
45.08	do		PX
45.10	do		PP
45.12	do		PX
45.14	do		PP
45.16	do		PX
45.18	do		PP
45.20	do		PX
45.22	do		PP
45.24	do		PX
45.26	Mobile		PP
45.28	Base or mobile		PX
45.30	Mobile		PP
45.32	Base or mobile		PX
45.34	Mobile		PP
45.36	Base or mobile		PX
45.38	Mobile		PP
45.40	Base or mobile		PX
45.42	do		PP
45.44	do		PX
45.46	do		PP
45.48	do		PX
45.50	do		PP
45.52	do		PX
45.54	do		PP
45.56	do		PX
45.58	do		PP
45.60	do		PX
45.62	do		PP
45.64	do		PX
45.66	do		PP
45.68	do		PH
45.70	do		PP
45.72	do		PH
45.74	Mobile		PP
45.76	Base or mobile		PH
45.78	Mobile		PP
45.80	Base or mobile		PH
45.82	Mobile		PP
45.84	Base or mobile		PH
45.86	do	15	PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
45.88	do	19	PF
45.90	do	20	PP
45.92	do	10	PS
45.94	do		PP
45.96	do	10	PS
45.98	do		PP
46.00	do	10	PS
46.02	do		PP
46.04	do	10	PS
46.06	do		PF
46.08	do		PF
46.10	do		PF
46.12	do		PF
46.14	do		PF
46.16	do		PF
46.18	do		PF
46.20	do		PF
46.22	Mobile		PF
46.24	do		PF
46.26	do		PF
46.28	do		PF
46.30	Mobile or fixed	11	PF
46.32	Mobile		PF
46.34	do		PF
46.36	Base or mobile		PF
46.38	do		PF
46.40	do		PF
46.42	do		PF
46.44	do		PF
46.46	do		PF
46.48	do		PF
46.50	do		PF
46.52	do		PX
46.54	do		PX
46.56	do		PX
46.58	do		PX
47.02	do	21, 22	PH
47.04	do	21, 22	PH
47.06	do	21, 22	PH
47.08	do	21, 22	PH
47.10	do	21, 22	PH
47.12	do	21, 22	PH
47.14	do	21, 22	PH
47.16	do	21, 22	PH
47.18	do	21, 22	PH
47.20	do	21, 22	PH
47.22	do	21, 22	PH
47.24	do	21, 22	PH
47.26	do	21, 22	PH
47.28	do	21, 22	PH
47.30	do	21, 22	PH
47.32	do	21, 22	PH
47.34	do	21, 22	PH
47.36	do	21, 22	PH
47.38	do	21, 22	PH
47.40	do	21, 22	PH
47.42	do	10, 23	PS
47.46	do	10	PS
47.50	do	10	PS
47.54	do	10	PS
47.58	do	10	PS
47.62	do	10	PS
47.66	do	10	PS
72.00 to 76.00	Operational fixed.	24	
72.44	Mobile	25	PF
72.48	do	25	PF
72.52	do	25	PF
72.56	do	25	PF
72.6	do	25	PF

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
75.44	do	25	PF
75.48	do	25	PF
75.52	do	25	PF
75.56	do	25	PF
75.6	do	25	PF
150 to 170	Base or mobile	26	
150.775	Mobile	87	PM.
150.7825	do	88	PM
150.790	do	87	PM.
150.7975	do	88	PM.
150.805	do		PM
150.995	Base or mobile	28	PH
151.0025	do	27, 28	PH
151.010	do	28	PH
151.0175	do	28	PH
151.025	do	28	PH
151.0325	do	27, 28	PH
151.040	do	28	PH
151.0475	do	27, 28	PH
151.055	do	28	PH
151.0625	do	27, 28	PH
151.070	do	28	PH
151.0775	do	27, 28	PH
151.085	do	28	PH
151.0925	do	27, 28	PH
151.100	do	28	PH
151.1075	do	27, 28	PH
151.115	do	28	PH
151.1225	do	27, 28	PH
151.130	do	28, 81	PH
151.1375	do	27, 28, 80	PH
151.145	do	28, 81	PO
151.1525	do	27, 28	PO
151.160	do	28	PO
151.1675	do	27, 28	PO
151.175	do	28	PO
151.1825	do	27, 28	PO
151.190	do	28	PO
151.1975	do	27, 28	PO
151.205	do	28	PO
151.2125	do	27, 28	PO
151.220	do	28	PO
151.2275	do	27, 28	PO
151.235	do	28	PO
151.2425	do	27, 28	PO
151.250	do	28	PO
151.2575	do	27, 28	PO
151.265	do	28	PO
151.2725	do	27, 28	PO
151.280	do	28	PO
151.2875	do	27, 28	PO
151.295	do	28	PO
151.3025	do	27, 28	PO
151.310	do	28	PO
151.3175	do	27, 28	PO
151.325	do	28	PO
151.3325	do	27, 28	PO
151.340	do	28	PO
151.3475	do	27, 28	PO
151.355	do	28	PO
151.3625	do	27, 28	PO
151.370	do	28	PO
151.3775	do	2728	PO
151.385	do	28	PO
151.3925	do	27, 28	PO
151.400	do	28	PO
151.4075	do	27, 28	PO
151.415	do	28	PO
151.4225	do	27, 28	PO
151.430	do	28	PO

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
151.4375	do	27, 28	PO
151.445	do	28	PO
151.4525	do	27, 28	PO
151.460	do	28	PO
151.4675	do	27, 28	PO
151.475	do	28	PO
151.4825	do	27, 28	PO
151.490	do	7, 28	PO
151.4975	do	7, 27, 28	PO
152.0075	Base	13, 29, 30	PS
153.740	Mobile		PX
153.7475	do	27	PX
153.755	do		PX
153.7625	do	27	PX
153.770	do		PF
153.7775	do	27	PF
153.785	do		PX
153.7925	do	27	PX
153.800	do		PX
153.8075	do	27	PX
153.815	do		PX
153.8225	do	27	PX
153.830	do	31	PF
153.8375	do	27, 31	PF
153.845	do		PX
153.8525	do	27	PX
153.860	do		PX
153.8675	do	27	PX
153.875	do		PX
153.8825	do	27	PX
153.890	do		PF
153.8975	do	27	PF
153.905	do		PX
153.9125	do	27	PX
153.920	do		PX
153.9275	do	27	PX
153.935	do		PX
153.9425	do	27	PX
153.950	do		PF
153.9575	do	27	PF
153.965	do		PX
153.9725	do	27	PX
153.980	do		PX
153.9875	do	27	PX
153.995	do		PX
154.0025	do	27	PX
154.010	do		PF
154.0175	do	27	PF
154.025	Base or mobile		PX
154.0325	do	27	PX
154.040	do	28	PX
154.0475	do	27, 28	PX
154.055	do	28	PX
154.0625	do	27, 28	PX
154.070	Mobile	28	PF
154.0775	do	27, 28	PF
154.085	Base or mobile	28	PX
154.0925	do	2728	PX
154.100	do	28	PX
154.1075	do	27, 28	PX
154.115	do	28	PX
154.1225	do	27, 28	PX
154.130	do	28	PF
154.1375	do	27, 28	PF
154.145	do	28	PF
154.1525	do	27, 28	PF
154.160	do	28	PF
154.1675	do	27, 28	PF
154.175	do	28	PF
154.1825	do	27, 28	PF

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
154.190	do	28	PF
154.1975	do	27, 28	PF
154.205	do	28	PF
154.2125	do	27, 28	PF
154.220	do	28	PF
154.2275	do	27, 28	PF
154.235	do	28	PF
154.2425	do	27. 28	PF
154.250	do	28	PF
154.2575	do	27, 28	PF
154.265	do	19, 28	PF
154.2725	do	19, 27, 28	PF
154.280	do	19, 28	PF
154.2875	do	19, 27, 28	PF
154.295	do	19, 28	PF
154.3025	do	19, 27, 28	PF
154.310	do	28	PF
154.3175	do	27, 28	PF
154.325	do	28	PF
154.3325	do	27, 28	PF
154.340	do	28	PF
154.3475	do	27, 28	PF
154.355	do	28	PF
154.3625	do	27, 28	PF
154.370	do	28	PF
154.3775	do	27, 28	PF
154.385	do	28	PF
154.3925	do	27, 28	PF
154.400	do	28	PF
154.4075	do	27, 28	PF
154.415	do	28	PF
154.4225	do	27, 28	PF
154.430	do	28	PF
154.4375	do	27, 28	PF
154.445	do	28, 81	PF
154.4525	do	27, 28, 80.	PF
154.45625	Fixed or mobile	32, 33, 34, 35.	PX
154.46375	do	33, 34, 35, 36, 37.	PX
154.47125	do	33, 34, 35, 36.	PX
154.47875	do	33, 34, 35, 37.	PX
154.650	Mobile		PP
154.6575	do	27	PP
154.665	Base or mobile	16	PP
154.6725	do	16, 27	PP
154.680	do	16	PP
154.6875	do	16, 27	PP
154.695	do	16	PP
154.7025	do	16, 27	PP
154.710	Mobile		PP
154.7175	do	27	PP
154.725	Base or mobile		PP
154.7325	do	27	PP
154.740	do		PP
154.7475	do	27	PP
154.755	do		PP
154.7625	do	27	PP
154.770	Mobile		PP
154.7775	do	27	PP
154.785	Base or mobile		PP
154.7925	do	27	PP
154.800	do		PP
154.8075	do	27	PP
154.815	do		PP
154.8225	do	27	PP
154.830	Mobile		PP
154.8375	do	27	PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
154.845	Base or mobile		PP
154.8525	do	27	PP
154.860	do		PP
154.8675	do	27	PP
154.875	do		PP
154.8825	do	27	PP
154.890	Mobile		PP
154.8975	do	27	PP
154.905	Base or mobile	16	PP
154.9125	do	16	PP
154.920	do	16	PP
154.9275	do	16, 27	PP
154.935	do	16	PP
154.9425	do	16, 27	PP
154.950	Mobile		PP
154.9575	do	27	PP
154.965	Base or mobile		PX
154.9725	do	27	PX
154.980	do		PX
154.9875	do	27	PX
154.995	do		PX
155.0025	do	27	PX
155.010	do		PP
155.0175	do	27	PP
155.025	do		PX
155.0325	do	27	PX
155.040	do		PX
155.0475	do	27	PX
155.055	do		PX
155.0625	do	27	PX
155.070	do		PP
155.0775	do	27	PP
155.085	do		PX
155.0925	do	27	PX
155.100	do		PX
155.1075	do	27	PX
155.115	do		PX
155.1225	do	27	PX
155.130	do		PP
155.1375	do	27	PP
155.145	do		PX
155.1525	do	27	PX
155.160	do	10	PS
155.1675	do	10, 27	PS
155.175	do	10	PS
155.1825	do	10, 27	PS
155.190	do		PP
155.1975	do	27	PP
155.205	do	10	PS
155.2125	do	10, 27	PS
155.220	do	10	PS
155.2275	do	10, 27	PS
155.235	do	10	PS
155.2425	do	10, 27	PS
155.250	do		PP
155.2575	do	27	PP
155.265	do	10	PS
155.2725	do	10, 27	PS
155.280	do	10	PS
155.2875	do	10, 27	PS
155.295	do	10	PS
155.3025	do	10, 27	PS
155.310	do		PP
155.3175	do	27	PP
155.325	do	10, 39	PM
155.3325	do	27, 10, 39	PM
155.340	do	39, 40	PM
155.3475	do	27, 39, 40	PM
155.355	do	10, 39	PM
155.3625	do	27, 10, 39	PM

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
155.370	do		PP
155.3775	do	27	PP
155.385	do	10, 39	PM
155.3925	do	27, 10, 39	PM
155.400	do	10, 39	PM
155.4075	do	27, 10, 39	PM
155.415	do		PP
155.4225	do	27	PP
155.430	do		PP
155.4375	do	27	PP
155.445	do	16	PP
155.4525	do	16, 27	PP
155.460	do	16	PP
155.4675	do	16, 27	PP
155.475	do	41	PP
155.4825	do	27, 41	PP
155.490	do		PP
155.4975	do	27	PP
155.505	do	16	PP
155.5125	do	16, 27	PP
155.520	do		PP
155.5275	do	27	PP
155.535	do		PP
155.5425	do	27	PP
155.550	do		PP
155.5575	do	27	PP
155.565	do		PP
155.5725	do	27	PP
155.580	do		PP
155.5875	do	27	PP
155.595	do		PP
155.6025	do	27	PP
155.610	do		PP
155.6175	do	27	PP
155.625	do		PP
155.6325	do	27	PP
155.640	do		PP
155.6475	do	27	PP
155.655	do		PP
155.6625	do	27	PP
155.670	do		PP
155.6775	do	27	PP
155.685	do		PP
155.6925	do	27	PP
155.700	do		PP
155.7075	do	27	PP
155.715	do		PX
155.7225	do	27	PX
155.730	do		PP
155.7375	do	27	PP
155.745	do	81	PX
155.7525	do	27, 80, 83	PX
155.760	do	81	PX
155.7675	do	27	PX
155.775	do		PX
155.7825	do	27	PX
155.790	do		PP
155.7975	do	27	PP
155.805	do		PX
155.8125	do	27	PX
155.820	do		PX
155.8275	do	27	PX
155.835	do		PX
155.8425	do	27	PX
155.850	Mobile		PP
155.8575	do	27	PP
155.865	Base or mobile		PX
155.8725	do	27	PX
155.880	do		PX
155.8875	do	27	PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
155.895	do		PX
155.9025	do	27	PX
155.910	Mobile		PP
155.9175	do	27	PP
155.925	Base or mobile		PX
155.9325	do	27	PX
155.940	do		PX
155.9475	do	27	PX
155.955	do		PX
155.9625	do	27	PX
155.970	Mobile		PP
155.9775	do	27	PP
155.985	do		PX
155.9925	do	27	PX
156.000	do		PX
156.0075	do	27	PX
156.015	do		PX
156.0225	do	27	PX
156.030	do		PP
156.0375	do	27	PP
156.045	do	42	PH
156.0525	do	27, 42	PH
156.060	do	42	PH
156.0675	do	27, 42	PH
156.075	do		PH
156.0825	do	27	PH
156.090	do		PP
156.0975	do	27	PP
156.105	Base or mobile		PH
156.1125	do	27	PH
156.120	do		PH
156.1275	do	27	PH
156.135	do		PH
156.1425	do	27	PH
156.150	Mobile		PP
156.1575	do	27	PP
156.165	Base or mobile	42	PH
156.1725	do	27, 42	PH
156.180	do	42	PH
156.1875	do	27, 42	PH
156.195	do		PH
156.2025	do	27	PH
156.210	do		PP
156.2175	do	27	PP
156.225	do		PH
156.2325	do	27, 10	PH
156.240	do	79	PH
157.450	Base	13, 30, 45	PS
158.7225	Base or Mobile	44	PP
158.730	do	81	PP
158.7375	do	27, 80	PP
158.745	do	81	PX
158.7525	do	27	PX
158.760	do		PX
158.7675	do	27	PX
158.775	do		PX
158.7825	do	27	PX
158.790	do		PP
158.7975	do	27	PP
158.805	do		PX
158.8125	do	27	PX
158.820	do		PX
158.8275	do		PX
158.835	do		PX
158.8425	do	27	PX
158.850	do		PP
158.8575	do	27	PP
158.865	Mobile		PX
158.8725	do	27	PX
158.880	do		PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
158.8875	do		PX
158.895	do		PX
158.9025	do	27	PX
158.910	do		PP
158.9175	do	27	PP
158.925	do		PX
158.9325	do	27	PX
158.940	do		PX
158.9475	do		PX
158.955	do		PX
158.9625	do	27	PX
158.970	do		PP
158.9775	do	27	PP
158.985	do		PH
158.9925	do	27	PH
159.000	do		PH
159.0075	do	27	PH
159.015	do		PH
159.0225	do	27	PH
159.030	do		PP
159.0375	do	27	PP
159.045	do		PH
159.0525	do	27	PH
159.060	do		PH
159.0675	do	27	PH
159.075	do		PH
159.0825	do	27	PH
159.090	Base or mobile		PP
159.0975	do	27	PP
159.105	do		PH
159.1125	do	27	PH
159.120	do		PH
159.1275	do	27	PH
159.135	do		PH
159.1425	do	27	PH
159.150	do		PP
159.1575	do	27	PP
159.165	do		PH
159.1725	do	27	PH
159.180	do		PH
159.1875	do	27	PH
159.195	do		PH
159.2025	do	27	PH
159.210	do		PP
159.2175	do	27	PP
159.225	do		PO
159.2325	do	27	PO
159.240	do	46	PO
159.2475	do	27, 46	PO
159.255	do	46	PO
159.2625	do	27, 46	PO
159.270	do	46	PO
159.2775	do	27, 46	PO
159.285	do	46	PO
159.2925	do	27, 46	PO
159.300	do	46	PO
159.3075	do	27, 46	PO
159.315	do	46	PO
159.3225	do	27, 46	PO
159.330	do	46	PO
159.3375	do	27, 46	PO
159.345	do	46	PO
159.3525	do	27, 46	PO
159.360	do	46	PO
159.3675	do	27, 46	PO
159.375	do	46	PO
159.3825	do	27, 46	PO
159.390	do	46	PO
159.3975	do	27, 46	PO
159.405	do	46	PO

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
159.4125	do	27, 46	PO
159.420	do	46	PO
159.4275	do	27, 46	PO
159.435	do	46	PO
159.4425	do	27, 46	PO
159.450	do		PO
159.4575	do	27	PO
159.465	do	81	PO
159.4725	do	80	PO
163.250	Base	13, 30	PS
166.250	Base or mobile	47	PF
169 to 172	Mobile or operational fixed.	48.	
170.150	Base or mobile	47	PF
170.425	do	9, 49	PO.
170.475	do	9, 49	PO.
170.575	do	9, 49	PO.
171.425	do	9, 49	PO.
171.475	do	9, 49	PO.
171.575	do	9, 49	PO.
172.225	do	9, 49	PO.
172.275	do	9, 49	PO.
172.375	do	9, 49	PO.
173.075	do	53	PP
173.20375	Fixed or mobile	33, 34, 35, 36.	PX
173.210	do	34, 35, 36, 54.	PX
173.2375	do	32, 33, 34, 35.	PX
173.2625	do	32, 33, 34, 35.	PX
173.2875	do	32, 33, 34, 35.	PX
173.3125	do	32, 33, 34, 35.	PX
173.3375	do	32, 33, 34, 35.	PX
173.3625	do	32, 33, 34, 35.	PX
173.390	do	34, 35, 36, 54.	PX
173.39625	do	33, 34, 35, 36.	PX
220 to 222	Base or mobile	55.	
220.8025	Base	55	
220.8075	do	55	
220.8125	do	55	
220.8175	do	55	
220.8225	do	55	
220.8275	do	55	
220.8325	do	55	
220.8375	do	55	
220.8425	do	55	
220.8475	do	55	
220.9025	do	55	PM
220.9075	do	55	PM
220.9125	do	55	PM
220.9175	do	55	PM
220.9225	do	55	PM
221.8025	Mobile	55	
221.8075	do	55	
221.8125	do	55	
221.8175	do	55	
221.8225	do	55	
221.8275	do	55	
221.8325	do	55	
221.8375	do	55	
221.8425	do	55	
221.8475	do	55	

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
221.9025	do	55	PM
221.9075	do	55	PM
221.9125	do	55	PM
221.9175	do	55	PM
221.9225	do	55	PM
406 to 416	Operational fixed.	48.	
450 to 470	Fixed, base, or mobile.	26, 56	
453.0125	Mobile	57, 78	PX
453.03125	Base or mobile	44, 59, 62, 84.	PM
453.0375	do	27, 59, 62, 84.	PX
453.04375	do	44, 59, 62, 84.	PM
453.050	do		PX
453.05625	do	44, 84	PX
453.0625	do	27, 84	PX
453.06875	do	44, 84	PX
453.075	Central control, fixed base, or mobile.	58, 59, 60, 61, 62.	PM
453.08125	Base or mobile	44, 59, 62, 84.	PM
453.0875	do	27, 59, 62, 84.	PX
453.09375	do	44, 59, 62, 84.	PM
453.100	do		PX
453.10625	do	44, 84	PX
453.1125	do	27, 84	PX
453.11875	do	44, 84	PX
453.125	Central control, fixed base, or mobile.	58, 59, 60, 61, 62.	PM
453.13125	Base or mobile	44, 59, 62, 84.	PM
453.1375	do	27, 59, 62, 84.	PX
453.14375	do	44, 59, 62, 84.	PM
453.150	do		PX
453.15625	do	44	PX
453.1625	do	27	PX
453.16875	do	44	PX
453.175	Central control, fixed base, or mobile.	58, 59, 60, 61, 62.	PM
453.18125	Base or mobile	44, 59, 62	PM
453.1875	do	27, 59, 62	PX
453.19375	do	44, 59, 62	PM
453.200	do	81	PX
453.20625	do	44, 82	PX
453.2125	do	27, 80, 83	PX
453.21875	do	44, 82	PX
453.225	do	81	PX
453.23125	do	44	PX
453.2375	do	27	PX
453.24375	do	44	PX
453.250	do		PX
453.25625	do	44	PX
453.2625	do	27	PX
453.26875	do	44	PX
453.275	do		PX
453.28125	do	44	PX
453.2875	do	27	PX
453.29375	do	44	PX
453.300	do		PX
453.30625	do	44	PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
453.3125	do	27	PX
453.31875	do	44	PX
453.325	do		PX
453.33125	do	44	PX
453.3375	do	27	PX
453.34375	do	44	PX
453.350	do		PX
453.35625	do	44	PX
453.3625	do	27	PX
453.36875	do	44	PX
453.375	do		PX
453.38125	do	44	PX
453.3875	do	27	PX
453.39375	do	44	PX
453.400	do		PX
453.40625	do	44	PX
453.4125	do	27	PX
453.41875	do	44	PX
453.425	do		PX
453.43125	do	44	PX
453.4375	do	27	PX
453.44375	do	44	PX
453.450	do	81	PX
453.45625	do	44, 82	PX
453.4625	do	27, 80	PX
453.46875	do	44, 82	PX
453.475	do	81	PX
453.48125	do	44	PX
453.4875	do	27	PX
453.49375	do	44	PX
453.500	do		PX
453.50625	do	44	PX
453.5125	do	27	PX
453.51875	do	44	PX
453.525	do		PX
453.53125	do	44	PX
453.5375	do	27	PX
453.54375	do	44	PX
453.550	do		PX
453.55625	do	44	PX
453.5625	do	27	PX
453.56875	do	44	PX
453.575	do		PX
453.58125	do	44	PX
453.5875	do	27	PX
453.59375	do	44	PX
453.600	do		PX
453.60625	do	44	PX
453.6125	do	27	PX
453.61875	do	44	PX
453.625	do		PX
453.63125	do	44	PX
453.6375	do	27	PX
453.64375	do	44	PX
453.650	do		PX
453.65625	do	44	PX
453.6625	do	27	PX
453.66875	do	44	PX
453.675	do		PX
453.68125	do	44	PX
453.6875	do	27	PX
453.69375	do	44	PX
453.700	do	81	PX
453.70625	do	44, 82	PX
453.7125	do	27, 80	PX
453.71875	do	44, 82	PX
453.725	do	81	PX
453.73125	do	44	PX
453.7375	do	27	PX
453.74375	do	44	PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
453.750	do		PX
453.75625	do	44	PX
453.7625	do	27	PX
453.76875	do	44	PX
453.775	do		PX
453.78125	do	44	PX
453.7875	do	27	PX
453.79375	do	44	PX
453.800	do		PX
453.80625	do	44	PX
453.8125	do	27	PX
453.81875	do	44	PX
453.825	do		PX
453.83125	do	44	PX
453.8375	do	27	PX
453.84375	do	44	PX
453.850	do	81	PX
453.85625	do	44, 82	PX
453.8625	do	27, 80	PX
453.86875	do	44, 82	PX
453.875	do	81	PX
453.88125	do	44, 84	PX
453.8875	do	27, 84	PX
453.89375	do	44, 84	PX
453.900	do		PX
453.90625	do	44, 84	PX
453.9125	do	27, 84	PX
453.91875	do	44, 84	PX
453.925	do		PX
453.93125	do	44, 84	PX
453.9375	do	27, 84	PX
453.94375	do	44, 84	PX
453.950	do		PX
453.95625	do	44, 84	PX
453.9625	do	27, 84	PX
453.96875	do	44, 84	PX
453.975	do		PX
453.98125	do	44, 84	PX
453.9875	do	27, 84	PX
453.99375	do	44, 84	PX
458.0125	Mobile	57	PS
458.025	Central control, fixed base, or mobile.	58, 59, 61, 62, 63.	PM
458.03125	Mobile	44, 59, 61, 62, 84.	PM
458.0375	do	27, 59, 61, 62, 84.	PX
458.04375	do	44, 59, 61, 62, 84.	PM
458.050	do		PX
458.05625	do	44, 84	PX
458.0625	do	27, 84	PX
458.06875	do	44, 84	PX
458.075	Central control, fixed base, or mobile.	58, 59, 61, 62, 63.	PM
458.08125	Mobile	44, 59, 61, 62, 84.	PM
458.0875	do	27, 59, 61, 62, 84.	PX
458.09375	do	44, 59, 61, 62, 84.	PM
458.100	do		PX
458.10625	do	44, 84	PX
458.1125	do	27, 84	PX
458.11875	do	44, 84	PX
458.125	Central control, fixed base, or mobile.	58, 59, 61, 62, 63.	PM

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
458.13125	Mobile	44, 59, 61, 62, 84.	PM
458.1375	do	27, 59, 61, 62, 84.	PX
458.14375	do	44, 59, 61, 62, 84.	PM
458.150	do		PX
458.15625	do	44	PX
458.1625	do	27	PX
458.16875	do	44	PX
458.175	Central control, fixed base, or mobile.	58, 59, 61, 62, 63.	PM
458.18125	Mobile	44, 59, 61, 62.	PM
458.1875	do	27, 59, 61, 62.	PX
458.19375	do	44, 59, 61, 62.	PM
458.200	do	81	PX
458.20625	do	44, 82	PX
458.2125	do	27, 80, 83	PX
458.21875	do	44, 82	PX
458.225	do	81	PX
458.23125	do	44	PX
458.2375	do	27	PX
458.24375	do	44	PX
458.250	do		PX
458.25625	do	44	PX
458.2625	do	27	PX
458.26875	do	44	PX
458.275	do		PX
458.28125	do	44	PX
458.2875	do	27	PX
458.29375	do	44	PX
458.300	do		PX
458.30625	do	44	PX
458.3125	do	27	PX
458.31875	do	44	PX
458.325	do		PX
458.33125	do	44	PX
458.3375	do	27	PX
458.34375	do	44	PX
458.350	do		PX
458.35625	do	44	PX
458.3625	do	27	PX
458.36875	do	44	PX
458.375	do		PX
458.38125	do	44	PX
458.3875	do	27	PX
458.39375	do	44	PX
458.400	do		PX
458.40625	do	44	PX
458.4125	do	27	PX
458.41875	do	44	PX
458.425	do		PX
458.43125	do	44	PX
458.4375	do	27	PX
458.44375	do	44	PX
458.450	do	81	PX
458.45625	do	44, 82	PX
458.4625	do	27, 80	PX
458.46875	do	44, 82	PX
458.475	do	81	PX
458.48125	do	44	PX
458.4875	do	27	PX
458.49375	do	44	PX
458.500	do		PX
458.50625	do	44	PX
458.5125	do	27	PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
458.51875	do	44	PX
458.525	do		PX
458.53125	do	44	PX
458.5375	do	27	PX
458.54375	do	44	PX
458.550	do		PX
458.55625	do	44	PX
458.5625	do	27	PX
458.56875	do	44	PX
458.575	do		PX
458.58125	do	44	PX
458.5875	do	27	PX
458.59375	do	44	PX
458.600	do		PX
458.60625	do	44	PX
458.6125	do	27	PX
458.61875	do	44	PX
458.625	do		PX
458.63125	do	44	PX
458.6375	do	27	PX
458.64375	do	44	PX
458.650	do		PX
458.65625	do	44	PX
458.6625	do	27	PX
458.66875	do	44	PX
458.675	do		PX
458.68125	do	44	PX
458.6875	do	27	PX
458.69375	do	44	PX
458.700	do		PX
458.70625	do	44	PX
458.7125	do	27	PX
458.71875	do	44	PX
458.725	do		PX
458.73125	do	44	PX
458.7375	do	27	PX
458.74375	do	44	PX
458.750	do		PX
458.75625	do	44	PX
458.7625	do	27	PX
458.76875	do	44	PX
458.775	do		PX
458.78125	do	44	PX
458.7875	do	27	PX
458.79375	do	44	PX
458.800	do		PX
458.80625	do	44	PX
458.8125	do	27	PX
458.81875	do	44	PX
458.825	do		PX
458.83125	do	44	PX
458.8375	do	27	PX
458.84375	do	44	PX
458.850	do	81	PX
458.85625	do	44, 82	PX
458.8625	do	27, 80	PX
458.86875	do	44, 82	PX
458.875	do	81	PX
458.88125	do	44, 84	PX
458.8875	do	27, 84	PX
458.89375	do	44, 84	PX
458.900	do		PX
458.90625	do	44, 84	PX
458.9125	do	27, 84	PX
458.91875	do	44, 84	PX
458.925	do		PX
458.93125	do	44, 84	PX
458.9375	do	27, 84	PX
458.94375	do	44, 84	PX
458.950	do		PX

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
458.95625	do	44, 84	PX
458.9625	do	27, 84	PX
458.96875	do	44, 84	PX
458.975	do		PX
458.98125	do	44, 84	PX
458.9875	do	27, 84	PX
458.99375	do	44, 84	PX
460.0125	do	27, 64	PP
460.01875	Base or mobile	44	PP
460.025	do		PP
460.03125	do	44	PP
460.0375	do	27	PP
460.04375	do	44	PP
460.050	do		PP
460.05625	do	44	PP
460.0625	do	27	PP
460.06875	do	44	PP
460.075	do		PP
460.08125	do	44	PP
460.0875	do	27	PP
460.09375	do	44	PP
460.100	do		PP
460.10625	do	44	PP
460.1125	do	27	PP
460.11875	do	44	PP
460.125	do		PP
460.13125	do	44	PP
460.1375	do	27	PP
460.14375	do	44	PP
460.150	do		PP
460.15625	do	44	PP
460.1625	do	27	PP
460.16875	do	44	PP
460.175	do		PP
460.18125	do	44	PP
460.1875	do	27	PP
460.19375	do	44	PP
460.200	do		PP
460.20625	do	44	PP
460.2125	do	27	PP
460.21875	do	44	PP
460.225	do		PP
460.23125	do	44	PP
460.2375	do	27	PP
460.24375	do	44	PP
460.250	do		PP
460.25625	do	44	PP
460.2625	do	27	PP
460.26875	do	44	PP
460.275	do		PP
460.28125	do	44	PP
460.2875	do	27	PP
460.29375	do	44	PP
460.300	do		PP
460.30625	do	44	PP
460.3125	do	27	PP
460.31875	do	44	PP
460.325	do		PP
460.33125	do	44	PP
460.3375	do	27	PP
460.34375	do	44	PP
460.350	do		PP
460.35625	do	44	PP
460.3625	do	27	PP
460.36875	do	44	PP
460.375	do		PP
460.38125	do	44	PP
460.3875	do	27	PP
460.39375	do	44	PP
460.400	do		PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
460.40625	do	44	PP
460.4125	do	27	PP
460.41875	do	44	PP
460.425	do		PP
460.43125	do	44	PP
460.4375	do	27	PP
460.44375	do	44	PP
460.450	do		PP
460.45625	do	44	PP
460.4625	do	27	PP
460.46875	do	44	PP
460.475	do		PP
460.48125	do	44, 84	PP
460.4875	do	27, 84	PP
460.49375	do	44, 84	PP
460.500	do		PP
460.50625	do	44, 84	PP
460.5125	do	27, 84	PP
460.51875	do	44, 84	PP
460.525	do		PP, PF, PM
460.53125	do	44, 84	PP, PF, PM
460.5375	do	27, 84	PP, PF, PM
460.54375	do	44, 84	PP, PF, PM
460.550	do		PP, PF, PM
460.55625	do	44, 84	PP, PF, PM
460.5625	do	27, 84	PP, PF, PM
460.56875	do	44, 84	PP, PF, PM
460.575	do		PF
460.58125	do	44	PF
460.5875	do	27	PF
460.59375	do	44	PF
460.600	do		PF
460.60625	do	44	PF
460.6125	do	27	PF
460.61875	do	44	PF
460.625	do		PF
460.63125	do	44	PF
460.6375	do	27	PF
460.64375	do	44	PF
462.9375	do	57	PF
462.950	do	10, 65	PM
462.95625	do	10, 44, 65	PM
462.9625	do	27, 10, 65	PM
462.96875	do	10, 44, 65	PM
462.975	do	10, 65	PM
462.98125	do	10, 44, 65	PM
462.9875	do	27, 10, 65	PM
462.99375	do	10, 44, 65	PM
463.000	do	59, 66, 67	PM
463.00625	do	44, 59, 66, 67.	PM
463.0125	do	27, 59, 66, 67.	PM
463.01875	do	44, 59, 66, 67.	PM
463.025	do	59, 66, 67	PM
463.03125	do	44, 59, 66, 67.	PM
463.0375	do	27, 59, 66, 67.	PM
463.04375	do	44, 59, 66, 67.	PM

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
463.050	do	59, 66, 67	PM
463.05625	do	44, 59, 66, 67.	PM
463.0625	do	27, 59, 66, 67.	PM
463.06875	do	44, 59, 66, 67.	PM
463.075	do	59, 66, 76	PM
463.08125	do	44, 59, 66, 76.	PM
463.0875	do	27, 59, 66, 76.	PM
463.09375	do	44, 59, 66, 76.	PM
463.100	do	59, 66, 76	PM
463.10625	do	44, 59, 66, 76.	PM
463.1125	do	27, 59, 66, 76.	PM
463.11875	do	44, 59, 66, 76.	PM
463.125	do	59, 66, 76	PM
463.13125	do	44, 59, 66, 76.	PM
463.1375	do	27, 59, 66, 76.	PM
463.14375	do	44, 59, 66, 76.	PM
463.150	do	59, 66, 76	PM
463.15625	do	44, 59, 66, 76.	PM
463.1625	do	27, 59, 66, 76.	PM
463.16875	do	44, 59, 66, 76.	PM
463.175	do	59, 66, 76	PM
463.18125	do	44, 59, 66, 76.	PM
463.1875	do	27, 59, 66, 76.	PM
463.19375	do	44, 59, 66, 76.	PM
465.0125	Mobile	57	PP
465.025	do		PP
465.03125	do	44	PP
465.0375	do	27	PP
465.04375	do	44	PP
465.050	do		PP
465.05625	do	44	PP
465.0625	do	27	PP
465.06875	do	44	PP
465.075	do		PP
465.08125	do	44	PP
465.0875	do	27	PP
465.09375	do	44	PP
465.100	do		PP
465.10625	do	44	PP
465.1125	do	27	PP
465.11875	do	44	PP
465.125	do		PP
465.13125	do	44	PP
465.1375	do	27	PP
465.14375	do	44	PP
465.150	do		PP
465.15625	do	44	PP
465.1625	do	27	PP
465.16875	do	44	PP
465.175	do		PP
465.18125	do	44	PP
465.1875	do	27	PP

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
465.19375	do	44	PP
465.200	do		PP
465.20625	do	44	PP
465.2125	do	27	PP
465.21875	do	44	PP
465.225	do		PP
465.23125	do	44	PP
465.2375	do	27	PP
465.24375	do	44	PP
465.250	do		PP
465.25625	do	44	PP
465.2625	do	27	PP
465.26875	do	44	PP
465.275	do		PP
465.28125	do	44	PP
465.2875	do	27	PP
465.29375	do	44	PP
465.300	do		PP
465.30625	do	44	PP
465.3125	do	27	PP
465.31875	do	44	PP
465.325	do		PP
465.33125	do	44	PP
465.3375	do	27	PP
465.34375	do	44	PP
465.350	do		PP
465.35625	do	44	PP
465.3625	do	27	PP
465.36875	do	44	PP
465.375	do		PP
465.38125	do	44	PP
465.3875	do	27	PP
465.39375	do	44	PP
465.400	do		PP
465.40625	do	44	PP
465.4125	do	27	PP
465.41875	do	44	PP
465.425	do		PP
465.43125	do	44	PP
465.4375	do	27	PP
465.44375	do	44	PP
465.450	do		PP
465.45625	do	44	PP
465.4625	do	27	PP
465.46875	do	44	PP
465.475	do		PP
465.48125	do	44, 84	PP
465.4875	do	27, 84	PP
465.49375	do	44, 84	PP
465.500	do		PP
465.50625	do	44, 84	PP
465.5125	do	27, 84	PP
465.51875	do	44, 84	PP
465.525	do		PP, PF, PM
465.53125	do	44, 84	PP, PF, PM
465.5375	do	27, 84	PP, PF, PM
465.54375	do	44, 84	PP, PF, PM
465.550	Base or mobile		PP, PF, PM
465.55625	do	44, 84	PP, PF, PM
465.5625	do	27, 84	PP, PF, PM
465.56875	do	44, 84	PP, PF, PM
465.575	Mobile		PF

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
465.58125	do	44	PF
465.5875	do	27	PF
465.59375	do	44	PF
465.600	do		PF
465.60625	do	44	PF
465.6125	do	27	PF
465.61875	do	44	PF
465.625	do		PF
465.63125	do	44	PF
465.6375	do	27	PF
465.64375	do	44	PF
467.9375	do	57	PS
467.950	do	10, 65	PM
467.95625	do	10, 44, 65	PM
467.9625	do	10, 27, 65	PM
467.96875	do	10, 44, 65	PM
467.975	do	10, 65	PM
467.98125	do	10, 44, 65	PM
467.9875	do	10, 27, 65	PM
467.99375	do	10, 44, 65	PM
468.000	do	59, 66, 67	PM
468.00625	do	44, 59, 66, 67.	PM
468.0125	do	27, 59, 66, 67.	PM
468.01875	do	44, 59, 66, 67.	PM
468.025	do	59, 66, 67	PM
468.03125	do	44, 59, 66, 67.	PM
468.0375	do	27, 59, 66, 67.	PM
468.04375	do	44, 59, 66, 67.	PM
468.050	do	59, 66, 67	PM
468.05625	do	44, 59, 66, 67.	PM
468.0625	do	27, 59, 66, 67.	PM
468.06875	do	44, 59, 66, 67.	PM
468.075	do	59, 66, 76	PM
468.08125	do	44, 59, 66, 76.	PM
468.0875	do	27, 59, 66, 76.	PM
468.09375	do	44, 59, 66, 76.	PM
468.100	do	59, 66, 76	PM
468.10625	do	44, 59, 66, 76.	PM
468.1125	do	27, 59, 66, 76.	PM
468.11875	do	44, 59, 66, 76.	PM
468.125	do	59, 66, 76	PM
468.13125	do	44, 59, 66, 76.	PM
468.1375	do	27, 59, 66, 76.	PM
468.14375	do	44, 59, 66, 76.	PM
468.150	do	59, 66, 76	PM
468.15625	do	44, 59, 66, 76.	PM
468.1625	do	27, 59, 66, 76.	PM
468.16875	do	44, 59, 66, 76.	PM
468.175	do	59, 66, 76	PM

PUBLIC SAFETY POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
468.18125	.....do	44, 59, 66, 76.	PM
468.1875	.....do	27, 59, 66, 76.	PM
468.19375	.....do	44, 59, 66, 76.	PM
470 to 512	Base or mobile	68.	
758 to 775	Base, mobile	77	PX
788 to 805	Mobile	77	PX
806 to 817	.....do	69.	
851 to 862	Base or mobile	69	
928 and above	Operational fixed.	70.	
929 to 930	Base only	71.	
1,427 to 1,432	Base, mobile or operational fixed.	72.	
2,450 to 2,500	Base or mobile	73.	
4940 to 4990	Fixed, base or mobile.	85	
5850–5925	Base or mobile	86	Not applicable.
10,550 to 10,680.	.....do	74.	

(d) Explanation of assignment limitations appearing in the frequency table of paragraph (c)(3) of this section:

(1) This frequency is available for use by Travelers' Information Stations in accordance with § 90.242.

(2) The frequency is available for assignment only in accordance with a geographical assignment plan.

(3) Base stations operating on this frequency and rendering service to state police mobile units may be authorized to use a maximum output power in excess of the maximum indicated in § 90.205 but not in excess of 7500 watts: Provided, That such operation is secondary to other stations.

(4) The use of this frequency is on a secondary basis to any Canadian station.

(5) In addition to base and mobile stations, this frequency may be assigned to fixed stations on a secondary basis to base or mobile stations. Upon a showing of need, the use of a second frequency in the band 2505–3500 kHz may be made available to governmental entities through appropriate arrangements with Federal Government agencies for restricted area use on a shared basis with maximum power output, emission, and hours of operation determined on the basis of the technical conditions involved in using the selected frequency in the particular area.

(6) Only the central governments of the fifty individual States, the District of Columbia, and the insular areas of the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, and the unincorporated territories of American Samoa, Guam and the United States Virgin Islands are eligible to be licensed to use this spectrum, and then only for disaster communications purposes. Licensees may not use this spectrum to provide operational communications circuits. See also, § 90.264.

(7) This frequency is shared with the Industrial/Business Pool.

(8) This frequency is available for assignment only in accordance with a geographical assignment plan. This frequency may be used for conservation activities on a secondary basis to any station using the frequency for forest fire prevention, detection, and suppression.

(9) This frequency is reserved primarily for assignment to state licensees. Assignments to other licensees will be made only where the frequency is required for coordinated operation with the State system to which the frequency is assigned. Any request for such assignment must be supported by a statement from the State system concerned, indicating that the assignment is necessary for coordination of activities.

(10) A licensee regularly conducting two-way communication operations on this frequency may, on a secondary basis, also transmit one-way alert-paging signals to ambulance and rescue squad personnel.

(11) The maximum output power of any transmitter authorized to operate on this frequency shall not exceed 10 watts.

(12) This frequency is available in this service only to persons eligible under the provisions of paragraph (a)(2)(v) of this section for operation of transmitters having a maximum power output of three watts using A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, or G2D emission. This frequency is also available in the Industrial/Business Pool on a co-equal basis with the Public Safety licensees.

(13) This frequency will be assigned only for one-way paging communications to mobile receivers. Transmissions for the purpose of activating or controlling remote objects on this frequency are not authorized.

(14) The maximum output power of any transmitter authorized to operate on this frequency, after June 1, 1956, shall not exceed two watts. Licensees holding a valid authorization as of June 1, 1956, for base or mobile station operation on this frequency, with a power in excess of two watts, may continue to be authorized for such operation without regard to this power limitation.

(15) This frequency is reserved for assignment to stations for intersystem operations only: Provided, however, That licensees holding a valid authorization to use this frequency for local base or mobile operations as of June 1, 1956, may continue to be authorized for such use.

(16) This frequency is reserved primarily for assignment to state police licensees. Assignments to other police licensees will be made only where the frequency is required for coordinated operation with the state police system to which the frequency is assigned. Any request for such assignment must be supported by a statement from the state police system concerned indicating that the assignment is necessary for coordination of police activities.

(17) In the State of Alaska only, the frequency 42.40 MHz is available for assignment on a primary basis to stations in the Common Carrier Rural Radio Service utilizing meteor burst communications. The frequency may be used by private radio stations for meteor burst communications on a secondary, noninterference basis. Usage shall be in accordance with part 22 of this chapter or part 90. Stations utilizing meteor burst communications shall not cause harmful interference to stations of other radio services operating in accordance with the allocation table.

(18) No new licenses will be granted for one-way paging under §90.487 for use on this frequency after August 1, 1980. This frequency is available to persons eligible for station licenses under the provisions of paragraph (a)(2)(v) of this section on a co-equal basis with one-way paging users under §90.487 prior to August 1, 1985, and on a primary basis after August 1, 1985. Only A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, G2D emissions and power not exceeding 10 watts will be authorized. Antennas having gain greater than 0 dBd will not be authorized. Transmissions shall not exceed two seconds duration.

(19) This frequency is reserved for assignment to stations in this service for intersystem operations only and these operations must be primarily base-mobile communications.

(20) In the State of Alaska only, the frequency 45.90 MHz is available for assignment on a primary basis to private land mobile radio stations utilizing meteor burst communications. The frequency may be used by common carrier stations for meteor burst communications on a secondary, noninterference basis. Usage shall be in accordance with part 22 of this chapter and part 90. Stations utilizing meteor burst communications shall not cause harmful interference to stations of other radio services operating in accordance with the allocation table.

(21) This frequency will be assigned only in accordance with a geographical assignment plan and is reserved primarily for assignment to Highway maintenance systems operated by states. The use of this frequency by other Highway maintenance licensees will be authorized only where such use is necessary to coordinate activities with the particular state to which the frequency is assigned. Any request for such use must be supported by a statement from the state concerned.

(22) Notwithstanding the provisions of paragraph (d)(21) of this section, this frequency may be used by any licensees in the Public Safety Pool without a separate license for the purpose of operating self-powered vehicle detectors for traffic control and safety purposes, on a secondary basis, in accordance with §90.269.

(23) Thus frequency is reserved for assignment only to national organizations eligible for disaster relief operations under paragraph (a)(2)(vii) of this section.

(24) Assignment and use of frequencies in the band 72–76 MHz are governed by § 90.257 for operational-fixed stations and by § 90.241 for emergency call box operations. Specific frequencies are listed at § 90.257(a)(1).

(25) This frequency is available to Public Safety Pool licensees for fire call box operations on a shared basis in Industrial/Business Pool. All communications on this frequency must be conducted with persons or organizations charged with specific fire protection responsibility. All operations on this frequency are subject to the provisions of § 90.257(b).

(26) Assignment of frequencies in this band are subject to the provisions of § 90.173. Licensees as of August 18, 1995 who operate systems in the 150–170 MHz band that are 2.5 kHz removed from regularly assignable frequencies may continue to operate on a secondary, non-interference basis after August 1, 2003.

(27) This frequency will be assigned with an authorized bandwidth not to exceed 11.25 kHz. In the 450–470 MHz band, secondary telemetry operations pursuant to § 90.238(e) will be authorized on this frequency.

(28) This frequency is not available for assignment in this service in Puerto Rico or the Virgin Islands.

(29) This frequency is removed by 22.5 kHz from frequencies assigned to other radio services. Utilization of this frequency may result in, as well as be subject to, interference under certain operating conditions. In considering the use of this frequency, adjacent channel operations should be taken into consideration. If interference occurs, the licensee may be required to take the necessary steps to resolve the problem. See § 90.173(b).

(30) This frequency will be authorized a channel bandwidth of 25 kHz.

(31) The maximum output power of any transmitter authorized to operate on this frequency shall not exceed 100 watts. Stations authorized prior to July 15, 1992 for fixed operations will be permitted to continue such operations, but at a maximum transmitter power output of 10 watts.

(32) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 ft.) above ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(33) For FM transmitters, the sum of the highest modulating frequency in Hertz and the amount of the frequency deviation or swing in Hertz may not exceed 2800 Hz and the maximum deviation may not exceed 2.5 kHz. For AM transmitters, the highest modulation frequency may not exceed 2000 Hz. The carrier frequency must be maintained within .0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 6 kHz.

(34) This frequency is available on a shared basis with the Industrial/Business Pool for remote control and telemetry operations.

(35) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160 degrees of azimuth.

(36) The maximum power output of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1A, A1D, A2B, A2D, F1B, F1D, F2D, G1B, G1D, G2B, or G2D emission may be authorized.

(37) Use of this frequency is limited to stations located at least 120.7 km (75 miles) from the center of any urbanized area of 200,000 or more population (U.S. Census of Population 1970). Operation is on a secondary basis to licensees of the Industrial/Business Pool.

(38) [Reserved]

(39) In addition to other authorized uses, the use of F1B, F1D, F2B or F2D emission is permitted on this frequency for the operation of biomedical telemetry systems except in the following geographic locations:

(i) New York, N.Y.-Northeastern New Jersey; Los Angeles-Long Beach, Calif.; Chicago, Ill.-Northwestern Indiana; Philadelphia, Pa.-N.J.; Detroit, Mich.; San Francisco-Oakland, Calif.; Boston, Mass.; Washington, D.C.-Md.-Va.; Cleveland, Ohio; St. Louis, Mo.-Ill.; Pittsburgh, Pa.; Minneapolis-St. Paul, Minn.; Houston, Tex.; Baltimore, Md.; Dallas, Tex.; Milwaukee, Wis.; Seattle-

Everett, Wash.; Miami, Fla.; San Diego, Calif.; Atlanta, Ga.; Cincinnati, Ohio-Ky.; Kansas City, Mo.-Kans.; Buffalo, N.Y.; Denver, Colo.; San Jose, Calif.; New Orleans, La.; Phoenix, Ariz.; Portland, Oreg.-Wash.; Indianapolis, Ind.; Providence-Pawtucket-Warwick, R.I.-Mass.; Columbus, Ohio; San Antonio, Tex.; Louisville, Ky.-Ind.; Dayton, Ohio; Forth Worth, Tex.; Norfolk-Portsmouth, Va.; Memphis, Tenn.-Miss.; Sacramento, Calif.; Fort Lauderdale-Hollywood, Fla.; Rochester, N.Y.; Tampa-St. Petersburg, Fla;

(ii) The continuous carrier mode of operation may be used for telemetry transmissions on this frequency for periods up to two-minutes duration; following which there must be a break in the carrier for at least a one-minute period; and

(iii) Geographical coordinates for the above-listed urbanized areas may be found at Table 1 of § 90.635.

(40) This frequency may be designated by common consent as an intersystem mutual assistance frequency under an area-wide medical communications plan.

(41) This frequency is available nationwide for use in police emergency communications networks operated under statewide law enforcement emergency communications plans.

(42) This frequency may not be assigned within 161 km (100 miles) of New Orleans, La. (coordinates 29°56′53″ N and 90°04′10″ W).

(43) [Reserved]

(44) This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

(45) Operations on this frequency are limited to 30 watts transmitter output power.

(46) This frequency is shared with the Industrial/Business Pool in Puerto Rico and the Virgin Islands.

(47) This frequency may be assigned to stations in the Public Safety Pool in accordance with the provisions of § 90.265.

(48) Frequencies in this band will be assigned only for transmitting hydrological or meteorological data or for low power wireless microphones in accordance with the provisions of § 90.265.

(49) This frequency may be assigned only for forest firefighting and conservation activities in accordance with the provisions of § 90.265.

(50)–(51) [Reserved]

(52) In addition to agencies responsible for forest fire prevention, detection, and suppression, this frequency may be assigned to conservation agencies which do not have forest fire responsibilities on a secondary basis to any U.S. Government stations, *Provided*, That such assignment is necessary to permit mobile relay operation by such agencies.

(53) This frequency is subject to the provisions of paragraph (e)(6) of this section.

(54) For FM transmitters, the sum of the highest modulating frequency in hertz and the amount of the frequency deviation or swing in hertz may not exceed 1700 Hz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters, the highest modulating frequency may not exceed 1200 Hz. The carrier frequency must be maintained within .0005 percent of the center of the frequency band, and the authorized bandwidth may not exceed 3 kHz.

(55) Subpart T of this part contains rules for assignment of frequencies in the 220–222 MHz band.

(56) The frequencies available for use at fixed stations in this band and the requirements for assignment are set forth in § 90.261. Operation on these frequencies is secondary to stations in the Industrial/Business Pool where they are assigned for land mobile operations.

(57) This frequency is available for systems first licensed prior to August 18, 1995. No new systems will be authorized after August 18, 1995, but prior authorized systems may be modified, expanded, and renewed.

(58) This frequency is available for systems first licensed prior to March 31, 1980, for radio call box communications related to safety on highways in accordance with the provisions of § 90.241(c). No new systems will be authorized of this nature, but systems authorized prior to March 31, 1980 may be modified, expanded, and renewed.

(59) The continuous carrier mode of operation may be used for telemetry transmission on this frequency.

(60) Paging licensees as of March 20, 1991, may continue to operate on a primary basis until January 14, 1998.

(61) Highway radio call box operations first licensed prior to March 31, 1980 on this frequency may continue to operate in accordance with paragraph (d)(58) of this section.

(62) This frequency is also authorized for use by biomedical telemetry stations. F1B, F1D, F2B, F2D, F3E, G1B, G1D, G2B, G2D, and G3E emissions may be authorized for biomedical transmissions.

(63) Available for medical services mobile operations in the Public Safety Pool in accordance with paragraph (d)(61) of this section.

(64) Use of this frequency is on a secondary basis, limited to 2 watts output power and subject to the provisions of 90.267(h)(1), (h)(2), (h)(3), and (h)(4).

(65) This frequency is primarily authorized for use in the dispatch of medical care vehicles and personnel for the rendition or delivery of medical services. This frequency may also be assigned for intra-system and inter-system mutual assistance purposes. For uniformity in usage these frequency pairs may be referred to by channel name as follows:

Frequencies base and mobile (megahertz)	Mobile only (MHz)	Channel name
462.950	467.950	MED–9
462.95625	467.95625	MED–91
462.9625	467.9625	MED–92
462.96875	467.96875	MED–93
462.975	467.975	MED–10
462.98125	467.98125	MED–101
462.9875	467.9875	MED–102
462.99375	467.99375	MED–103

(66) For applications for new radio systems, the thirty-two frequency pairs listed in paragraph (d)(66)(i) of this section will be assigned in a block for shared operation under § 90.20(a)(1)(iii) or § 90.20(a)(2)(xiii) subject to the following:

(i) For uniformity in usage, these frequency pairs may be referred to by channel name as follows:

Frequencies base and mobile (megahertz)	Mobile only (MHz)	Channel name
463.000	468.000	MED–1
463.00625	468.00625	MED–11
463.0125	468.0125	MED–12
463.01875	468.01875	MED–13
463.025	468.025	MED–2
463.03125	468.03125	MED–21
463.0375	468.0375	MED–22
463.04375	468.04375	MED–23
463.050	468.050	MED–3
463.05625	468.05625	MED–31
463.0625	468.0625	MED–32
463.06875	468.06875	MED–33
463.075	468.075	MED–4
463.08125	468.08125	MED–41
463.0875	468.0875	MED–42
463.09375	468.09375	MED–43
463.100	468.100	MED–5
463.10625	468.10625	MED–51
463.1125	468.1125	MED–52
463.11875	468.11875	MED–53
463.125	468.125	MED–6
463.13125	468.13125	MED–61
463.1375	468.1375	MED–62
463.14375	468.14375	MED–63
463.150	468.150	MED–7
463.15625	468.15625	MED–71
463.1625	468.1625	MED–72
463.16875	468.16875	MED–73
463.175	468.175	MED–8
463.18125	468.18125	MED–81
463.1875	468.1875	MED–82
463.19375	468.19375	MED–83

(ii) Except as provided in paragraphs (d)(66)(iv) and (v) of this section, mobile or portable stations licensed prior to July 6, 2000, must employ equipment that is both wired and equipped to transmit/receive, respectively, on each of the following MED frequency pairs with transmitters operated on the 468 MHz frequencies: MED–1, MED–2, MED–3, MED–4, MED–5, MED–6, MED–7, and MED–8.

(iii) Except as provided in paragraphs (d)(66)(v) and (vi) of this section, mobile or portable stations licensed on or after July 6, 2000, must employ equipment that is both wired and equipped to transmit/receive, respectively, on each of the following MED frequency pairs with transmitters operated on the 468 MHz frequencies: MED–1, MED–12, MED–2, MED–22, MED–3, MED–32, MED–4, MED–42, MED–5, MED–52, MED–6 MED–62, MED–7, MED–72, MED–8, and MED–82.

(iv) Except as provided in paragraphs (d)(66)(v) and (vi) of this section, mobile or portable stations licensed on or after January 1, 2006, must employ equipment that is both wired and equipped to transmit/receive, respectively, on each of these MED frequency pairs with transmitters operated on the 468 MHz frequencies.

(v) Portable (hand-held) units operated with a maximum output power of 2.5 watts are exempted from the multi-

channel equipment requirements specified in paragraphs (d)(66)(ii), (d)(66)(iii), and (d)(66)(iv) of this section.

(vi) Stations located in areas above line A, as defined in § 90.7 will be required to meet multi-channel equipment requirements only for those frequencies up to the number specified in paragraphs (d)(66)(ii), (d)(66)(iii), and (d)(66)(iv) of this section that have been assigned and coordinates with Canada in accordance with the applicable U.S.-Canada agreement.

(67) This frequency is authorized for use only for operations in biomedical telemetry stations. F1B, F1D, F2B, F2D, F3E, G1B, G1D, G2B, G2D and G3E emissions may be authorized. Entities eligible in the Public Safety Pool may use this frequency on a secondary basis for any other permissible communications consistent with § 90.20(a)(1)(iii) or § 90.20(a)(2)(xiii).

(68) Subpart L of this part contains rules for assignment of frequencies in the 470–512 MHz band.

(69) Subpart S of this part contains rules for assignment of frequencies in the 806–817 MHz and 851–862 MHz bands.

(70) Assignment of frequencies above 928 MHz for operational-fixed stations is governed by part 101 of this chapter.

(71) Frequencies in this band are available only for one-way paging operations in accordance with § 90.494.

(72) This frequency band is available to stations in this service subject to the provisions of § 90.259.

(73) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices. In the band 2483.5–2500 MHz, no applications for new stations or modification to existing stations to increase the number of transmitters will be accepted. Existing licensees as of July 25, 1985, and licensees whose initial applications were filed on or before July 25, 1985, are grandfathered and their operations are on a co-primary basis with the mobile-satellite and radiodetermination-satellite services, and in the segment 2495–2500 MHz, their operations are also on a co-primary basis with part 27 fixed and mobile except aeronautical mobile service operations.

(74) This band is available for Digital Termination Systems and for associated internodal links in the Point-to-Point Microwave Radio Service. No new licenses will be issued under this subpart but current licenses will be renewed.

(75) Appropriate frequencies in the band 2000–3000 kHz which are designated in part 80 of this chapter as available to Public Ship Stations for telephone communications with Public Coast Stations may be assigned on a secondary basis to fixed Stations in the Public Safety Pool for communication with Public Coast Stations only, provided such stations are located in the United States and the following conditions are met:

(i) That such fixed station is established pursuant to the eligibility provisions of (§ 90.47) and that the isolated area involved is an island or other location not more than 480 km (300 statute miles) removed from the desired;

(ii) That evidence is submitted showing that an arrangement has been made with the coast station licensee for the handling of emergency communications permitted by § 80.453 of this chapter and § 90.20(a)(2)(x)(C); and

(iii) That operation of the Public Safety fixed station shall at no time conflict with any provision of part 80 of this chapter and further, that such operation in general shall conform to the practices employed by Public Ship Stations for radiotelephone communication with the same Public Coast Station.

(76) This frequency is authorized only for communications between medical facilities vehicles and personnel related to medical supervision and instruction for the treatment and transport of patients in the rendition or delivery of medical services. F1B, F1D, F2B, F2D, G1B, G1D, G2B, F3E and G3E emissions are authorized. Public Safety entities may use this frequency on a secondary basis for any other permissible communications consistent with § 90.20(a)(1)(iii) or § 90.20(a)(2)(xiii).

(77) Subpart R of this part contains rules for assignment of channels in the 758–775 MHz and 788–805 MHz bands.

(78) Paging operations are not permitted on this frequency.

(79) This frequency will be secondary to marine port operations within 161 km (100 miles) of Los Angeles, Calif. (coordinates 34°03′15″ N and 118°14′28″ W).

(80) After December 7, 2000 this frequency is available primarily for public safety interoperability only communications. Stations licensed prior to December 7, 2000 may continue to use this frequency on a co-primary basis until January 1, 2005. After January 1, 2005, all operations will be secondary to co-channel interoperability communications.

(81) After December 7, 2000 new stations will only be licensed with an authorized bandwidth not to exceed 1125 kHz. Licensees authorized prior to December 7, 2000 may continue to use bandwidths wider that 1125 kHz on a co-primary basis until January 1, 2005. After January 1, 2005, all stations operating with an authorized bandwidth greater than 11.25 kHz will be secondary to adjacent channel interoperability operations.

(82) This frequency is reserved for assignment only in support of, and on a secondary basis to, nationwide interoperability use.

(83) This interoperability frequency is dedicated for the express purpose of nationwide interoperability calling.

(84) Operation on this frequency is subject to the low power provisions of § 90.267. This frequency is assigned to the Public Safety Group in the low power pool.

(85) Subpart Y of this part contains rules for assignment of frequencies in the 4940–4990 MHz band.

(86) Subpart M of this part contains rules for assignment of frequencies in the 5850–5925 MHz band.

(87) The use the frequencies 150.775 MHz and 150.790 MHz are limited to a transmitter output power of 100 watts Effective Radiated Power (ERP) as of May 27, 2005.

(88) Use of this frequency is limited to stations licensed as of May 27, 2005.

(89) As of March 25, 2007, the FCC will cease to issue licenses for new stations in the fixed and mobile services in the following bands: 5900–5950 kHz, 7300–7350 kHz and 9400–9500 kHz. As of March 29, 2009, the FCC will cease to issue licenses for new stations in the fixed and mobile services in the band 7350–7400 kHz and, in the U.S. Pacific insular areas in Region 3, the band 7400–7450 kHz. Stations licensed as of March 25, 2007 in the bands 5900–5950 kHz, 7300–7350 kHz and 9400–9500 kHz and as of March 29, 2009 for the band 7350–7400 kHz in Region 2 and the band 7350–7450 kHz in Region 3 shall:

(1) Be limited to communications only within the United States and its insular areas;

(2) Not cause harmful interference to the broadcasting service;

(3) Be limited to the minimum power needed to achieve communications; and

(4) Take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations*.

(e) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Substitution of frequencies available below 25 MHz may be made in accordance with the provisions of § 90.263.

(2) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized their use on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. See also § 90.257.

(3) [Reserved]

(4) Frequencies in the 421–430 MHz band are available in the Detroit, Mich., Cleveland, Ohio and Buffalo, N.Y. areas in accordance with the rules in §§ 90.273 through 90.281.

(5) A Police licensee may use transmitters on the frequencies indicated below in connection with official police activities without specific authorization from the Commission, provided that such use shall be on a secondary basis and shall not cause harmful interference to services of other licensees operating on regularly assigned frequencies, and further provided that all such use complies with the requirements of Federal, State and local laws. The provisions of § 90.429 shall not apply to transmitters authorized under this paragraph. To be eligible for operations in this manner, the transmitter

must comply with all of the following requirements.

(i) In accordance with §§ 90.203 and 2.803 of this chapter, the transmitter must be of a type which has been certificated by the Commission.

(ii) The carrier frequency shall be within the bands listed below and must be maintained within 0.005 percent of the frequency of operation. Use on assigned channel center frequencies is not required.

30.85–30.87 MHz	31.97–32.00 MHz
30.89–30.91 MHz	33.00–33.03 MHz
30.93–30.95 MHz	33.05–33.07 MHz
30.97–30.99 MHz	33.41–34.00 MHz
31.01–31.03 MHz	37.00–37.43 MHz
31.05–31.07 MHz	37.89–38.00 MHz
31.09–31.11 MHz	39.00–40.00 MHz
31.13–31.15 MHz	42.00–42.91 MHz
31.17–31.19 MHz	44.61–45.91 MHz
31.21–31.23 MHz	45.93–45.95 MHz
31.25–31.27 MHz	45.97–45.99 MHz
31.29–31.31 MHz	46.01–46.03 MHz
31.33–31.35 MHz	46.05–46.60 MHz
31.37–31.39 MHz	47.00–47.41 MHz
31.41–31.43 MHz	150.995–151.490 MHz
31.45–31.47 MHz	153.740–154.445 MHz
31.49–31.51 MHz	154.635–155.195 MHz
31.53–31.55 MHz	155.415–156.250 MHz
31.57–31.59 MHz	158.715–159.465 MHz
31.61–31.63 MHz	453.0125–453.9875 MHz
31.65–31.67 MHz	458.0125–458.9875 MHz
31.69–31.71 MHz	460.0125–460.5125 MHz
31.73–31.75 MHz	460.5625–460.6375 MHz
31.77–31.79 MHz	462.9375–462.9875 MHz
31.81–31.83 MHz	465.0125–465.5125 MHz
31.85–31.87 MHz	465.5625–465.6375 MHz
31.89–31.91 MHz	467.9375–467.9875 MHz
31.93–31.95 MHz	

(iii) The emitted signal shall be non-voice modulation (type PO emission).

(iv) The maximum occupied bandwidth, containing 99 percent of the radiated power, shall not exceed 2.0 kHz.

(v) The transmitter output power shall not exceed a mean power of 30 mW nor shall any peak exceed 1 watt peak power, as measured into a 50 ohm resistive load. Should the transmitter be supplied with a permanently attached antenna or should the transmitter and antenna combination be contained in a sealed unit, the following standard may be used in lieu of the above: the field strength of the fundamental signal of the transmitter and antenna combination shall not exceed 0.4 V/m mean or 2.3 V/m peak when measured at a distance of 3 meters.

(vi) The transmitter shall contain positive means to limit the transmission time to no more than 10 days. In the event of a malfunction of this positive means, the transmitter signal shall cease. The use of battery life to accomplish the transmission time limitation is permissible.

(6) The frequency 173.075 MHz is available for stolen vehicle recovery systems on a shared basis with Federal stations in the fixed and mobile services.

(i) Stolen vehicle recovery systems are limited to tracking and recovering vehicles, cargo, and hazardous materials that have been reported stolen or missing; missing or wanted persons; and individuals at risk, or individuals of interest to law enforcement, only when established boundaries are violated. Stolen vehicle recovery systems are not authorized for general purpose tracking or monitoring. Mobile units may also transmit automatic collision notifications, vehicle fire notifications, and carjacking alerts.

(ii) Any type of emission may be used within a maximum authorized bandwidth of 12.5 kHz, except that stations that operate as part of a stolen vehicle recovery system that was authorized and in operation prior to May 27, 2005 may operate with a maximum authorized bandwidth of 20 kHz until May 27, 2019. For a complete listing of emission symbols allowable under this part, see § 2.201 of this chapter.

(iii) Mobile transmitters operating on this frequency with emissions authorized in a maximum bandwidth of 12.5 kHz are limited to 5.0 watts power output. Mobile transmitters operating on this frequency with emissions authorized in a maximum bandwidth of 20 kHz are limited to 2.5 watts power output.

(iv) Base station transmitters operating on this frequency with emissions authorized in a maximum bandwidth of 12.5 kHz are limited to 300 watts ERP before February 18, 2009, and 500 watts ERP thereafter. Base station transmitters operating on this frequency with emissions authorized in a maximum bandwidth of 20 kHz are limited to 300 watts ERP.

(v) Transmissions from mobiles shall be limited to 400 milliseconds for every

10 seconds, except when a vehicle is being tracked actively transmissions are limited to 400 milliseconds for every second. Alternatively, transmissions from mobiles shall be limited to 7200 milliseconds for every 300 seconds with a maximum of six such messages in any 30 minute period.

(vi) Transmissions from base stations shall be limited to a total rate of five seconds every minute.

(vii) Any entity eligible to hold authorizations in the Public Safety Pool in accordance with §§ 90.20(a) and 90.111 of this chapter is authorized by this rule to operate mobile transmitters on this frequency. No license will be issued for mobile transmitters.

(viii) Applications for base stations operating on this frequency shall require coordination with the Federal Government. Applicants shall perform an analysis for each base station that is located within 169 km (105 miles) of a TV Channel 7 transmitter of potential interference to TV Channel 7 viewers. Applicants shall serve a copy of the analysis to the licensee of the affected TV Channel 7 transmitter upon filing the application with the Commission. Such base stations will be authorized if the applicant has limited the interference contour to include fewer than 100 residences or if the applicant:

(A) Shows that the proposed site is the only suitable location (which, at the application stage, requires a showing that the proposed site is especially well-suited to provide the proposed service);

(B) Develops a plan to control any interference caused to TV reception from operations; and

(C) Agrees to make such adjustments in the TV receivers affected as may be necessary to eliminate interference caused by its operations.

(ix) The licensee must eliminate any interference caused by its operation to TV Channel 7 reception within 30 days after notification in writing by the Commission. If this interference is not removed within this 30-day period, operation of the base station must be discontinued. The licensee is expected to help resolve all complaints of interference.

(7) Frequencies governed by § 90.35(c)(17).

(f) *Limitation on number of frequencies assignable.* Normally only two frequencies or pairs of frequencies in the paired frequency mode of operation will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with the operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation;

(2) The frequency 39.06 MHz may be assigned notwithstanding this limitation;

(3) Frequencies in the 25–50 MHz, 150–170 MHz, 450–512 MHz and 902–928 MHz bands may be assigned for the operation of Location and Monitoring Service (LMS) systems in accordance with the provisions of subpart M of this part, notwithstanding this limitation;

(4) A licensee of a radio station in this service may operate radio units for the purpose of determining distance, direction, speed, or position by means of a radiolocation device on any frequency available for radiolocation purposes without additional authorization from the Commission, provided type accepted equipment or equipment authorized pursuant to § 90.203(b)(4) and (b)(5) of this part is used, and all other rule provisions are satisfied. A licensee in this service may also operate, subject to all of the foregoing conditions and on a secondary basis, radio units at fixed locations and in emergency vehicles that transmit on the frequency 24.10 GHz, both unmodulated continuous wave radio signals and modulated FM digital signals for the purpose of alerting motorists to hazardous driving conditions or the presence of an emergency vehicle. Unattended and continuous operation of such transmitters will be permitted.

(5) A Police licensee may use, without special authorization from the Commission, any mobile service frequency between 40 and 952 MHz, listed in paragraph (c)(3) of this section, for communications in connection with physical surveillance, stakeouts, raids,

and other such activities. Such use shall be on a secondary basis to operations of licensees regularly authorized on the assigned frequencies. The maximum output power that may be used for such communications is 2 watts. Transmitters, operating under this provision of the rules, shall be exempted from the station identification requirements of §90.425. Use of frequencies not designated by a ''PP'' in the coordinator column of the frequency table in paragraph (c)(3) of this section, is conditional on the approval of the coordinator corresponding to each frequency. Spread spectrum transmitters may be operated on Public Safety Pool frequencies between 37 and 952 MHz, providing that they are certificated by the Commission under the provisions of §2.803 of this chapter and §90.203, and meet the following conditions:

(i) Frequency hopping transmitters can be operated, with a maximum output power of 2 watts, on any Public Safety Pool frequency between 37 and 952 MHz listed in paragraph (c)(3) of this section. At least 20 hopping frequencies shall be used and the average time of occupancy on any frequency shall not be greater than 1/10 second in every 2 seconds;

(ii) Use of spread spectrum transmitters under paragraph (f)(4) of this section is subject to approval by the applicable frequency coordinator of the radio services of the district in which the license and equipment are to be used; and

(iii) The use of direct sequence spread spectrum equipment is also permitted. Equipment must meet the technical standards of §15.247 of this chapter.

(6) In addition to the frequencies assigned for mobile service operation, one base station frequency above 152 MHz may be assigned as a common frequency to all licensees in a particular area to permit intersystem communication between base stations or mobile stations or both. This frequency use will not be authorized in any area where all available frequencies are required for independent systems.

(7) A licensee may use, without a specific authorization from the Commission, transmitters on the frequencies indicated below in connection with wildlife tracking and/or telemetry and in connection with official forestry-conservation activities, provided that such use shall be on a secondary basis and shall not cause harmful interference to services of other licensees operating on regularly assigned frequencies. The provisions of §§90.203, 90.425, and 90.429 shall not apply to transmitters complying with this paragraph. To be eligible for operations in this manner, the transmitter must comply with all of the following requirements.

(i) The carrier frequency shall be within the bands listed below. The carrier frequency must be maintained within 0.005 percent of the frequency of operation.

Use on assigned channel center frequencies is not required.

(MHz)

31.17 to 31.19	31.85 to 31.87
31.21 to 31.23	31.89 to 31.91
31.25 to 31.27	31.93 to 31.95
31.29 to 31.31	31.97 to 31.99
31.33 to 31.35	44.63 to 44.65
31.37 to 31.39	44.67 to 44.69
31.41 to 31.43	44.71 to 44.73
31.45 to 31.47	44.75 to 44.77
31.49 to 31.51	44.79 to 44.81
31.53 to 31.55	44.83 to 44.85
31.57 to 31.59	44.87 to 44.89
31.61 to 31.63	44.91 to 44.93
31.65 to 31.67	44.95 to 44.97
31.69 to 31.71	44.99 to 45.01
31.73 to 31.75	45.03 to 45.05
31.77 to 31.79	151.145 to 151.475
31.81 to 31.83	159.225 to 159.465

(ii) The emitted signal shall be non-voice modulation (A1D, A2D, F1D, or F2D emission).

(iii) The maximum occupied bandwidth, containing 99 percent of the radiated power, shall not exceed 0.25 kHz.

(iv) The transmitter output power shall not exceed a mean power of 5 mW nor shall any peak exceed 100 mW peak power, as measured into a permanently attached antenna; or if the transmitter and antenna combination are contained in a sealed unit, the field strength of the fundamental signal of the transmitter and antenna combination shall not exceed 0.29 V/m mean or 1.28 V/m peak when measured at a distance of 3 meters.

(v) The requirements of §90.175 regarding frequency coordination apply.

(8) An additional frequency may be assigned for paging operations from those frequencies available under paragraph (d)(13) of this section.

(9) The frequency 155.340 MHz may be assigned as an additional frequency when it is designated as a mutual assistance frequency as provided in paragraph (d)(40) of this section.

(10) Additional frequencies may be assigned for fixed station operations.

(11) The assignment of an additional frequency or frequencies may be authorized notwithstanding this limitation for common, intra-county, intra-fire-district, or intrastate fire coordination operations. The frequency or frequencies requested must be in accordance with a frequency utilization plan, for the area involved, on file with the Commission.

(g) *Former public correspondence working channel in the maritime VHF (156–162 MHz) band allocated for public safety use in 33 inland Economic Areas.* (1) We define service areas in the marine VHF (156–162 MHz) band by forty-two geographic areas called VHF Public Coast Service Areas (VPCSAs). See § 80.371(c)(1)(ii) of this chapter (Public correspondence frequencies). VPCSAs are based on, and composed of one or more of, the U.S. Department of Commerce's 172 Economic Areas (EAs). See 60 Fed Reg. 13114 (Mar. 10, 1995). You may inspect and copy maps of the EAs and VPCSAs at the FCC Reference Center, Room CY A–257, 445 12th St., SW., Washington, DC 20554. These maps and data are also available on the FCC website at *http://www.fcc.gov/oet/info/maps/areas/*. We number public correspondence channels in the maritime VHF (156–162 MHz) band as channels 24 to 28 and channels 84 to 88. Each channel number represents a channel pair. See § 80.371(c) of this chapter.

(2) In VHF Public Coast Service Areas (VPCSAs) 10–42, the duplex channel pair 157.250 MHz/161.850 MHz (VHF Maritime Channel 25) is allocated for public safety use by entities eligible for licensing under paragraph (a) of this section, and is designated primarily for the purpose of interoperability communications. *See* 47 CFR 80.371(c)(1)(ii) for the definitions of VPCSAs.

(i) The channel pair 157.250 MHz/161.850 MHz was formerly allocated and assigned (under § 80.371(c) (1997) of this chapter) as a public correspondence working channel in the maritime VHF 156–162 MHz band, and was also shared (under former § 90.283 (1997) of this chapter) with private land mobile stations, including grandfathered public safety licensees. Thus, there are grandfathered licensees nationwide (maritime and private land mobile radio stations, including by rule waiver) operating on this channel both inside and outside of VPCSAs 10–42.

(ii) The channel pairs 157.225 MHz/161.825 MHz and 157.275 MHz/161.875 MHz were formerly allocated and assigned under this section as public safety interoperability channels but were reallocated for assignment as VHF public coast station channels under § 80.371(c) of this chapter. Public safety operations licensed on these channels as of March 2, 2009 or licensed pursuant to an application filed prior to September 19, 2008, may remain authorized to operate on the channels on a primary basis until March 2, 2024.

(3) All applicants and licensees under this paragraph must comply with the relevant technical sections under this part unless otherwise stated in this paragraph (g) of this section using the following standards and procedures:

(i) Provide evidence of frequency coordination in accordance with § 90.175. Public safety coordinators except the Special Emergency Coordinator are certified to coordinate applications for the channel pair 157.250 MHz/161.850 MHz (*i.e.*, letter symbol PX under paragraph (c)(2) of this section).

(ii) Station power, as measured at the output terminals of the transmitter, must not exceed 50 Watts for base stations and 20 Watts for mobile stations, except in accordance with the provisions of paragraph (g)(3)(vi) of this section. Antenna height (HAAT) must not exceed 122 meters (400 feet) for base stations and 4.5 meters (15 feet) for mobile stations, except in accordance with paragraph (g)(3)(vi) of this section. Antenna height (HAAT) must not exceed 122 meters (400 feet) for base stations and 4.5 meters (15 feet) for mobile stations, except in accordance with paragraph (g)(3)(vi) of

this section. Such base and mobile channels shall not be operated on board aircraft in flight.

(iii) Frequency protection must be provided to other stations in accordance with the following guidelines for each channel and for each area and adjacent area:

(A) Protect coast stations licensed prior to July 6, 1998, by the required separations shown in Table C below.

(B) Protect stations described in paragraph (g)(2)(i) of this section, by frequency coordination in accordance §90.175 of this part.

(C) Protect public safety stations granted under paragraph (g) of this section by frequency coordination in accordance with §90.175 of this part.

(D) *Where the Public safety designated channel is not a Public safety designated channel in an adjacent VPCSA:* Applicants shall engineer base stations such that the maximum signal strength at the boundary of the adjacent VPCSA does not exceed 5dBμV/m.

(iv) The following table, along with the antenna height (HAAT) and power (ERP), must be used to determine the minimum separation required between proposed base stations and co-channel public coast stations licensed prior to July 6, 1998 under part 80 of this chapter. Applicants whose exact ERP or HAAT are not reflected in the table must use the next highest figure shown.

TABLE C—REQUIRED SEPARATION IN KILOMETERS (MILES) OF BASE STATION FROM PUBLIC COAST STATIONS

Base Station Characteristics					
HAAT	ERP (watts)				
Meters (feet)	400	300	200	100	50
15 (50)	138 (86)	135 (84)	129 (80)	129 (80)	116 (72)
30 (100)	154 (96)	151 (94)	145 (90)	137 (85)	130 (81)
61 (200)	166 (103)	167 (104)	161 (100)	153 (95)	145 (90)
122 (400)	187 (116)	177 (110)	183 (114)	169 (105)	159 (99)

(v) In the event of interference, the Commission may require, without a hearing, licensees of base stations authorized under this section that are located within 241 kilometers (150 miles) of a co-channel public coast, I/LT, or grandfathered public safety station licensed prior to July 6, 1998, or an international border, to reduce power, decrease antenna height, and/or install directional antennas.

Mobile stations must be operated only within radio range of their associated base station.

(vi) Applicants seeking to be licensed for stations exceeding the power/antenna height limits of the table in paragraph (g)(3)(iv) of this section must request a waiver of that paragraph and must submit with their application an interference analysis, based upon an appropriate, generally-accepted terrain-based propagation model, that shows that co-channel protected entities, described in paragraph (g)(3)(iii) of this section, would receive the same or greater interference protection than the relevant criteria outlined in paragraph (g)(3)(iii) of this section.

(h) *Spectrum leasing arrangements.* Notwithstanding any other provisions of this section to the contrary, licensees in the Public Safety Radio Services (*see* part 90, subpart B) may enter into spectrum leasing arrangements (*see* part 1, subpart X of this chapter) with entities providing communications in support of public safety operations.

[62 FR 18845, Apr. 17, 1997]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §90.20, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov.*

§90.22 Paging operations.

Unless specified elsewhere in this part, paging operations may be authorized in the Public Safety Pool on any frequency except those assigned under the provisions of §90.20(d)(78). Paging operations on frequencies subject to §90.20(d)(78) authorized before August

17, 1974, may be continued only if they do not cause harmful interference to regular operations on the same frequencies. Such paging operations may be renewed indefinitely on a secondary basis to regular operations, except within 125 km (75 mi) of the following urbanized areas:

Urbanized area	North latitude	West longitude
New York, NY-Northeastern NJ	40-45-06.4	73-59-37.5
Los Angeles-Long Beach, CA	34-03-15.0	118-14-31.3
Chicago, IL	41-52-28.1	87-38-22.2
Philadelphia, PA-NJ	39-56-58.4	75-09-19.6
Detroit, MI	42-19-48.1	83-02-56.7
San Francisco-Oakland, CA	37-46-38.7	122-24-43.9
Boston, MA	42-21-24.4	71-03-23.2
Washington, DC-MD-VA	38-53-51.4	77-00-31.9
Cleveland, OH	41-29-51.2	81-41-49.5
St Louis, MO-IL	38-37-45.2	90-12-22.4
Pittsburgh, PA	40-26-19.2	79-59-59.2
Minneapolis-St Paul, MN	44-58-56.9	93-15-43.8
Houston, TX	29-45-26.8	95-21-37.8
Baltimore, MD	39-17-26.4	76-36-43.9
Dallas, TX	32-47-09.5	96-47-38.0
Milwaukee, WI	43-02-19.0	87-54-15.3
Seattle-Everett, WA	47-36-31.4	122-20-16.5
Miami, FL	25-46-38.4	80-11-31.2
San Diego, CA	32-42-53.2	117-09-24.1
Atlanta, GA	33-45-10.4	84-23-36.7
Cincinnati, OH-KY	39-06-7.2	84-30-34.8
Kansas City, MO-KS	39-04-56.0	94-35-20.8
Buffalo, NY	42-52-52.2	78-52-20.1
Denver, CO	39-44-58.0	104-59-23.9

[63 FR 68959, Dec. 14, 1998, as amended at 64 FR 36262, July 6, 1999; 65 FR 60874, Oct. 13, 2000]

Subpart C—Industrial/Business Radio Pool

SOURCE: 62 FR 18874, Apr. 17, 1997, unless otherwise noted.

§ 90.31 Scope.

The Industrial/Business Radio Pool covers the licensing of the radio communications of entities engaged in commercial activities, engaged in clergy activities, operating educational, philanthropic, or ecclesiastical institutions, or operating hospitals, clinics, or medical associations. Rules as to eligibility for licensing, frequencies available, permissible communications and classes and number of stations, and any special requirements are set forth in the following sections.

§ 90.33 General eligibility.

(a) In addition to the eligibility shown in the Industrial/Business Pool, eligibility is also provided for any corporation proposing to furnish nonprofit radiocommunication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary. This corporate eligibility is not subject to the cooperative use provision of § 90.179.

(b) Eligibility is also provided for a nonprofit corporation or association that is organized for the purpose of furnishing a radiocommunications service to persons who meet the eligibility requirements of the Industrial/Business Pool. Such use is subject to the cooperative use provisions of § 90.179.

§ 90.35 Industrial/Business Pool.

(a) *Eligibility*. Persons primarily engaged in any of the following activities are eligible to hold authorizations in the Industrial/Business Pool to provide commercial mobile radio service as defined in part 20 of this chapter or to operate stations for transmission of communications necessary to such activities of the licensee:

(1) The operation of a commercial activity;

(2) The operation of educational, philanthropic, or ecclesiastical institutions;

(3) Clergy activities; or

(4) The operation of hospitals, clinics, or medical associations.

(5) Public Safety Pool eligibles are eligible for Industrial/Business Pool spectrum only to The extent that they are engaged in activities listed in paragraphs (a)(1) through (4) of this section. Industrial/Business Pool spectrum many not be utilized for the purposes set forth in § 90.20(a).

(b) *Industrial/Business Pool frequencies*. (1) The following table indicates frequencies available for assignment to Industrial/Business Pool stations, together with the class of station(s) to which they are normally assigned, the specific assignment limitations which are explained in paragraph (b) of this section, and the certified frequency coordinator for each frequency:

(2) Unless otherwise specified, coordination of frequencies in the Industrial/

Business pool must be done in accordance with the following:

(i) Unless specified elsewhere in this part, frequencies without any coordinator specified in the Coordinator column of paragraph (b)(3) of this section may be coordinated by any frequency coordinator certified in the Industrial/Business Pool.

(ii) A letter symbol in the Coordinator column of the frequency table in paragraph (b)(3) of this section designates the mandatory certified frequency coordinator for the associated frequency in the table. However, any coordinator certified in the Industrial/Business Pool may coordinate applications on such frequencies provided the prior written consent of the designated coordinator is obtained. Frequencies for which two coordinators are listed may be coordinated by either of the listed coordinators.

(iii) For frequencies above 150 MHz, applications for new or modified facilities on frequencies shared prior to radio service consolidation by the former Manufacturers Radio Service, the Forest Products Radio Service, the Power Radio Service, the Petroleum Radio Service, the Motor Carrier Radio Service, the Railroad Radio Service, the Telephone Maintenance Radio Service and the Automobile Emergency Radio Service may be coordinated by any certified Industrial/Business Pool coordinator. However, in the event that the interference contour of a proposed station would overlap the service contour of an existing station licensed on one of these previously shared frequencies, the written concurrence of the coordinator associated with the industry for which the existing station license was issued, or the written concurrence of the licensee of the existing station, shall be obtained. For the purposes of this § 90.35, the service contour for UHF stations is the 39 dBu contour; and the interference contour for UHF stations is the 21 dBu contour; the service contour for VHF stations is the 37 dBu contour; and the interference contour for VHF stations is the 19 dBu contour.

(iv) The letter symbols listed in the Coordinator column of the frequency table in paragraph (b)(3) of this section refer to specific frequency coordinators as follows:

IP—Petroleum Coordinator
IW—Power Coordinator
LR—Railroad Coordinator
LA—Automobile Emergency Coordinator

(3) *Frequencies.*

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator
Kilohertz			
2000 to 25,000	Fixed, base or mobile.	1, 90	
2292	Base or mobile	4, 5, 7.	
2398	do	5, 7.	
4637.5	do	5, 7.	
Megahertz			
25.02	do	3, 4	IP
25.04	do	8	IP
25.06	do	3, 4	IP
25.08	do	8, 9	IP
25.10	do	3, 4, 9	IP
25.12	do	9	IP
25.14	do	3, 4, 9	IP
25.16	do	9	IP
25.18	do	3, 4, 9	IP
25.20	do	9	IP
25.22	do	4, 7	IP
25.24	do		IP
25.26	do	4, 7	IP
25.28	do		IP
25.30	do	4, 7	IP
25.32	do		IP
27.43	do.		
27.45	do.		
27.47	do.		
27.49	do	10.	
27.51	Mobile	11.	
27.53	do	11.	
27.555	Base or mobile	89	
27.615	do	89	
27.635	do	89	
27.655	do	89	
27.765	do	89	
27.86	Base or mobile	89	
29.71	do		
29.73	do.		
29.75	do.		
29.77	do.		
29.79	do.		
30.58	do.		
30.60	do.		
30.62	do.		
30.64	do.		
30.66	do	4, 7.	
30.68	do.		
30.70	do	4, 7	IP
30.72	do.		
30.74	do	4, 7.	
30.76	do.		
30.78	do	4, 7	IP
30.80	do.		
30.82	do	4, 7.	
30.84	Mobile	11, 12.	
30.86	Base or mobile	13	
30.88	do.		
30.90	do	13.	
30.92	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
30.94	do	13.	
30.96	do.		
30.98	do	13.	
31.00	do.		
31.02	do	13.	
31.04	do.		
31.06	do	13.	
31.08	do.		
31.10	do	13.	
31.12	do.		
31.14	do	13.	
31.16	do.		
31.20	do.		
31.24	do.		
31.28	do.		
31.32	do.		
31.36	do.		
31.40	do.		
31.44	do.		
31.48	do.		
31.52	do.		
31.56	do.		
31.60	do.		
31.64	do.		
31.68	do.		
31.72	do.		
31.76	do.		
31.80	do.		
31.84	do.		
31.88	do.		
31.92	do.		
31.96	do.		
33.12	Mobile	11	
33.14	Mobile	11, 12.	
33.16	Base or mobile		
33.18	do		IP
33.20	do		IP
33.22	do		IP
33.24	do		IP
33.26	do		IP
33.28	do		IP
33.30	do		IP
33.32	do		IP
33.34	do		IP
33.36	do		IP
33.38	do		IP
33.40	Mobile	12, 14.	
35.02	do	11, 12, 13.	
35.04	Base or Mobile	10.	
35.06	do.		
35.08	do.		
35.10	do.		
35.12	do.		
35.14	do.		
35.16	do.		
35.18	do.		
35.28	do.		
35.32	do.		
35.36	do.		
35.40	do.		
35.44	do		
35.48	do		
35.52	do		
35.70	do.		
35.72	do.		
35.74	do.		
35.76	do.		
35.78	do.		
35.80	do.		
35.82	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
35.84	do.		
35.86	do.		
35.88	do.		
35.90	do.		
35.92	do.		
35.94	do.		
35.96	do.		
35.98	do.		
36.25	do	15	IP
37.44	do.		
37.46	do		IW
37.48	do		IW
37.50	do		IW
37.52	do		IW
37.54	do		IW
37.56	do		IW
37.58	do		IW
37.60	Base, mobile, or operational fixed.	16	IW
37.62	Base or mobile		IW
37.64	do		IW
37.66	do		IW
37.68	do		IW
37.70	do		IW
37.72	do		IW
37.74	do		IW
37.76	do		IW
37.78	do		IW
37.80	do		IW
37.82	do		IW
37.84	Base, mobile, or operational fixed.	16	IW
37.86	Base or mobile		IW
37.88	do.		
41.71	do	15	IP
42.96	do.		
42.98	Mobile	11, 12.	
43.00	Base or mobile		
43.02	do.		
43.04	do	17.	
43.06	do.		
43.08	do.		
43.10	do.		
43.12	do.		
43.14	do.		
43.16	Mobile.		
43.18	Base or mobile.		
43.28	do.		
43.32	do.		
43.36	do.		
43.40	do.		
43.44	do.		
43.48	do.		
43.52	do.		
43.70	do.		
43.72	do	18.	
43.74	do	18.	
43.76	do.		
43.78	do.		
43.80	do.		
43.82	do	18.	
43.84	do	18.	
43.86	do	19.	
43.88	do	19.	
43.90	do	19.	
43.92	do	18, 19.	
43.94	do	19.	
43.96	do	18.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
43.98	do.		
44.00	do.		
44.02	do.		
44.04	do.		
44.06	do.		
44.08	do.		
44.10	do	20.	
44.12	do	18.	
44.14	do.		
44.16	do	18.	
44.18	do	18.	
44.20	do	18, 21.	
44.22	do.		
44.24	do.		
44.26	do.		
44.28	do.		
44.30	do.		
44.32	do	18.	
44.34	do.		
44.36	do	18, 19.	
44.38	do	19.	
44.40	do	18, 19.	
44.42	do	19.	
44.44	do	19.	
44.46	do	18.	
44.48	do	18.	
44.50	do.		
44.52	do.		
44.54	do.		
44.56	do.		
44.58	do.		
44.60	do.		
47.44	do.		
47.48	do.		
47.52	do.		
47.56	do.		
47.60	do.		
47.64	do.		
47.68	do.		
47.70	do		IW
47.72	do		IW
47.74	do		IW
47.76	do		IW
47.78	do		IW
47.80	do		IW
47.82	do		IW
47.84	do		IW
47.86	do		IW
47.88	do		IW
47.90	do		IW
47.92	do		IW
47.94	do		IW
47.96	do		IW
47.98	do		IW
48.00	do		IW
48.02	do		IW
48.04	do		IW
48.06	do		IW
48.08	do		IW
48.10	do		IW
48.12	do		IW
48.14	do		IW
48.16	do		IW
48.18	do		IW
48.20	do		IW
48.22	do		IW
48.24	do		IW
48.26	do		IW
48.28	do		IW
48.30	do		IW

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
48.32	do		IW
48.34	do		IW
48.36	do		IW
48.38	do		IW
48.40	do		IW
48.42	do		IW
48.44	do		IW
48.46	do		IW
48.48	do		IW
48.50	do		IW
48.52	do		IW
48.54	do		IW
48.56	do.		
48.58	do.		
48.60	do.		
48.62	do.		
48.64	do.		
48.66	do.		
48.68	do.		
48.70	do.		
48.72	do.		
48.74	do.		
48.76	do	18.	
48.78	do.		
48.80	do.		
48.82	do.		
48.84	do	18.	
48.86	do	18.	
48.88	do.		
48.90	do.		
48.92	do	18.	
48.94	do.		
48.96	do.		
48.98	do.		
49.00	do.		
49.02	do	18.	
49.04	do.		
49.06	do.		
49.08	do	18.	
49.10	do	18.	
49.12	do.		
49.14	do.		
49.16	do	18.	
49.18	do.		
49.20	do	18.	
49.22	do.		
49.24	do	18.	
49.26	do	18.	
49.28	do	18.	
49.30	do.		
49.32	do.		
49.34	do.		
49.36	do	18.	
49.38	do.		
49.40	do	18.	
49.42	do.		
49.44	do.		
49.46	do	18.	
49.48	do.		
49.50	do	18.	
49.52	do.		
49.54	do.		
49.56	do.		
49.58	do.		
72 to 76	Operational fixed.	22.	
72.02	Mobile	23, 24.	
72.04	do	23, 24.	
72.06	do	23, 24.	
72.08	do	23, 24, 25.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
72.10	do	23, 24.	
72.12	do	23, 24.	
72.14	do	23, 24.	
72.16	do	23, 24, 25.	
72.18	do	23, 24.	
72.20	do	23, 24.	
72.22	do	23, 24.	
72.24	do	23, 24, 25.	
72.26	do	23, 24.	
72.28	do	23, 24.	
72.30	do	23, 24.	
72.32	do	23, 24, 25.	
72.34	do	23, 24.	
72.36	do	23, 24.	
72.38	do	23, 24.	
72.40	do	23, 24, 25.	
72.44	do	13, 24, 77.	
72.48	do	13, 24, 77.	
72.52	do	13, 24, 77.	
72.56	do	13, 24, 77.	
72.60	do	13, 24, 77.	
74.61	do	26, 77.	
74.63	do	26, 77.	
74.65	do	26, 77.	
74.67	do	26, 77.	
74.69	do	26, 77.	
74.71	do	26, 77.	
74.73	do	26, 77.	
74.75	do	26, 77.	
74.77	do	26, 77.	
74.79	do	26, 77.	
75.21	do	26, 77.	
75.23	do	26, 77.	
75.25	do	26, 77.	
75.27	do	26, 77.	
75.29	do	26, 77.	
75.31	do	26, 77.	
75.33	do	26, 77.	
75.35	do	26, 77.	
75.37	do	26, 77.	
75.39	do	26, 77.	
75.44	do	13, 24, 77.	
75.48	do	13, 24, 77.	
75.52	do	13, 24, 77.	
75.56	do	13, 24, 77.	
75.60	do	13, 24, 77.	
150 to 170	Base or mobile	27.	
150.815	do		LA
150.830	do	28, 29	LA
150.845	do		LA
150.8525	do	30	LA
150.860	do		LA
150.8675	do	30	LA
150.875	do		LA
150.8825	do	30	LA
150.890	do		LA
150.8975	do	30	LA
150.905	do		LA
150.920	do	28, 29	LA
150.935	do		LA
150.9425	do	30	LA
150.950	do		LA
150.9575	do	30	LA
150.965	do		LA
150.9725	do	30	LA
150.980	do	8	IP
150.9875	do	8, 30	IP
150.995	do	31.	
151.0025	do	30, 31	
151.010	do	31.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
151.0175	do	30, 31	
151.025	do	31.	
151.0325	do	30, 31	
151.040	do	31.	
151.0475	do	3031	
151.055	do	31.	
151.070	Base	28, 29, 31.	
151.085	Base or mobile	31.	
151.0925	do	30, 31	
151.100	do	31.	
151.1075	do	30, 31	
151.115	do	31.	
151.1225	do	30, 31	
151.130	do	31.	
151.1375	do	30, 31	
151.145	do	31.	
151.1525	do	30, 31	
151.160	do	31.	
151.1675	do	30, 31	
151.175	do	31.	
151.190	Base	28, 29, 31.	
151.205	Base or mobile	31.	
151.2125	do	30, 31	
151.220	do	31.	
151.2275	do	30, 31	
151.235	do	31.	
151.2425	do	30, 31	
151.250	do	31.	
151.2575	do	30, 31	
151.265	do	31.	
151.2725	do	30, 31	
151.280	do	31.	
151.2875	do	30, 31	
151.295	do	31.	
151.310	Base	28, 29, 31.	
151.325	Base or mobile	31.	
151.3325	do	30, 31	
151.340	do	31.	
151.3475	do	30, 31	
151.355	do	31.	
151.3625	do	30, 31	
151.370	do	31.	
151.3775	do	30, 31	
151.385	do	31.	
151.3925	do	30, 31	
151.400	do	31.	
151.4075	do	30, 31	
151.415	do	31.	
151.4225	do	30, 31	
151.430	do	31.	
151.4375	do	30, 31	
151.445	do	31.	
151.4525	do	30, 31	
151.460	do	31.	
151.4675	do	30, 31	
151.475	do	31.	
151.4825	do	30, 31	
151.490	do	13, 32.	
151.4975	do	30, 32	
151.505	do	17.	
151.5125	do	30, 17	
151.520	do.		
151.5275	do	30	
151.535	do.		
151.5425	do	30	
151.550	do.		
151.5575	do	30	
151.565	do.		
151.5725	do	30	
151.580	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
151.5875	do	30	
151.595	do.		
151.6025	do	30	
151.625	do	10.	
151.640	do	10, 33.	
151.6475	do	30	
151.655	do.		
151.6625	do	30	
151.670	do	30	
151.6775	do	30	
151.685	do.		
151.700	do	10, 30, 34.	
151.715	do.		
151.7225	do	30	
151.730	do	30	
151.7375	do	30	
151.745	do.		
151.760	do	10, 30, 34.	
151.775	do.		
151.7825	do	30	
151.790	do	30	
151.7975	do	30	
151.805	do.		
151.835	Base or mobile.		
151.8425	do	30	
151.850	do	30	
151.8575	do	30	
151.865	do.		
151.895	do		
151.9025	do	30	
151.910	do	30	
151.9175	do	30	
151.925	do.		
151.955	do		
151.9625	do	30	
151.970	do	30	
151.9775	do	30	
151.985	do.		
152.2625	do	33.	
152.270	do	6.	
152.2775	do	6, 30	
152.285	do	6.	
152.2925	do	6, 30	
152.300	do	6.	
152.3075	do	6, 30	
152.315	do	6.	
152.3225	do	6, 30	
152.330	do	6.	
152.3375	do	6, 30	
152.345	do	6.	
152.3525	do	6, 30	
152.360	do	6.	
152.3675	do	6, 30	
152.375	do	6.	
152.3825	do	6, 30	
152.390	do	6.	
152.3975	do	6, 30	
152.405	do	6.	
152.4125	do	6, 30	
152.420	do	6.	
152.4275	do	6, 30	
152.435	do	6.	
152.4425	do	6, 30	
152.450	do	6.	
152.4575	do	6, 30	
152.465	do	79.	
152.480	do	29, 36, 37, 38.	
152.8625	do	33.	
152.870	do		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
152.8775	do	30	
152.885	do.		
152.8925	do	30	
152.900	do.		
152.9075	do	30	
152.915	do.		
152.9225	do	30	
152.930	do.		
152.9375	do	30	
152.945	do.		
152.9525	do	30	
152.960	do.		
152.9675	do	30	
152.975	do.		
152.9825	do	30	
152.990	do.		
152.9975	do	30	
153.005	do.		
153.0125	do	30	
153.020	do.		
153.0275	do	30	
153.035	do		IP
153.0425	do	30.	
153.050	do	4, 7	IP
153.0575	do	4, 7, 30.	
153.065	do		IP
153.0725	do	30.	
153.080	do	4, 7	IP
153.0875	do	4, 7, 30.	
153.095	do		IP
153.1025	do	30, 80.	
153.110	do	4, 7	IP
153.1175	do	4, 7, 30.	
153.125	do		IP
153.1325	do	30.	
153.140	do	4, 7	IP
153.1475	do	4, 7, 30.	
153.155	do		IP
153.1625	do	30.	
153.170	do	4, 7	IP
153.1775	do	4, 7, 30.	
153.185	do		IP
153.1925	do	30.	
153.200	do	4, 7	IP
153.2075	do	4, 7, 30.	
153.215	do		IP
153.2225	do	30.	
153.230	do	4, 7	IP
153.2375	do	4, 7, 30.	
153.245	do		IP
153.2525	do	30.	
153.260	do	4, 7	IP
153.2675	do	4, 7, 30.	
153.275	do		IP
153.2825	do	30.	
153.290	do	4, 7	IP
153.2975	do	4, 7, 30.	
153.305	do		IP
153.3125	do	30.	
153.320	do	4, 7	IP
153.3275	do	4, 7, 30.	
153.335	do		IP
153.3425	do	30.	
153.350	do	4, 7	IP
153.3575	do	4, 7, 30.	
153.365	do		IP
153.3725	do	30.	
153.380	do		IP
153.3875	do	30.	
153.395	do		IP

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
153.4025	do	30.	
153.410	do		IW
153.4175	do	30	IW
153.425	do	80	IP, IW
153.4325	do	30, 80	IP, IW
153.440	do	80	IP, IW
153.4475	do	30, 80	IP, IW
153.455	do	80	IP, IW
153.4625	do	30, 80	IP, IW
153.470	do		IW
153.4775	do	30	IW
153.485	do	80	IP, IW
153.4925	do	30, 80	IP, IW
153.500	do	80	IP, IW
153.5075	do	30, 80	IP, IW
153.515	do	80	IP, IW
153.5225	do	30, 80	IP, IW
153.530	do		IW
153.5375	do	30	IW
153.545	do	80	IP, IW
153.5525	do	30, 80	IP, IW
153.560		30, 80	IP, IW
153.5675	do	30, 80	IP, IW
153.575	do	80	IP, IW
153.5825	do	30, 80	IP, IW
153.590	do		IW
153.5975	do	30	IW
153.605	do	80	IP, IW
153.6125	do	30, 80	IP, IW
153.620	do	80	IP, IW
153.6275	do	30, 80	IP, IW
153.635	do	80	IP, IW
153.6425	do	30, 80	IP, IW
153.650	do		IW
153.6575	do	30	IW
153.665	do	80	IP, IW
153.6725	do	30, 80	IP, IW
153.680	do	80	IP, IW
153.6875	do	30, 80	IP, IW
153.695	do		IW
153.7025	do	30	IW
153.710	do		IW
153.7175	do	30	IW
153.725	do		IW
153.7325	do	30	IW
154.45625	Fixed or mobile	39, 40, 41, 42.	
154.46375	do	39, 40, 43.	
154.47125	do	39, 40, 41, 44.	
154.47875	do	39, 40, 41, 42.	
154.4825	Base or mobile	30	
154.490	do.		
154.4975	do	30	
154.505	do	30	
154.515	do.		
154.5275	Mobile	10, 30, 34	
154.540	Base or mobile.		
154.5475	do	30	
154.555	do	33.	
154.585	Mobile	8, 46	IP
154.610	Base or mobile	33.	
154.625	do	36, 37, 48.	
154.640	Base	36, 37, 48.	
157.470	Base or mobile	12	LA
157.4775	do	12, 30	LA
157.485	do	12	LA
157.4925	do	12, 30	LA

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
157.500	do	12	LA
157.5075	do	12, 30	LA
157.515	do	12	LA
157.5225	do	12, 30	LA
157.530	Mobile	6.	
157.5375	do	6, 30	
157.545	do	6.	
157.5525	do	6, 30	
157.560	Base or mobile	6.	
157.5675	do	6, 30	
157.575	Mobile	6.	
157.5825	do	6, 30	
157.590	do	6.	
157.5975	do	6, 30	
157.605	do	6.	
157.6125	do	6, 30	
157.620	Base or mobile	6.	
157.6275	do	6, 30	
157.635	Mobile	6.	
157.6425	do	6, 30	
157.650	do	6.	
157.6575	do	6, 30	
157.665	do	6.	
157.6725	do	6, 30	
157.680	do	6.	
157.6875	do	6, 30	
157.695	do	6.	
157.7025	do	6, 30	
157.710	do	6.	
157.7175	do	6, 30	
157.725	Base or mobile	79.	
157.740	do	29, 36, 37, 38.	
158.1225	do	33	IW
158.130	do		IW
158.1375	do	6, 30	IW
158.145	do		IP, IW
158.1525	do	6, 30	IP, IW
158.160	do		IP, IW
158.1675	do	6, 30	IP, IW
158.175	do	81	IP, IW
158.1825	do	30, 81	IP, IW
158.190	do		IW
158.1975	do	30	IW
158.205	do	81	IP, IW
158.2125	do	30, 81	IP, IW
158.220	do	81	IP, IW
158.2275	do	30, 81	IP, IW
158.235	do	81	IP, IW
158.2425	do	30, 81	IP, IW
158.250	do		IW
158.2575	do	30	IW
158.265	do	81	IP, IW
158.2725	do	30, 81	IP, IW
158.280	do		IP
158.2875	do	30	IP
158.295	do		IP
158.3025	do	30	IP
158.310	do	4, 7	IP
158.3175	do	4, 7, 30	IP
158.325	do		IP
158.3325	do	30	IP
158.340	Mobile.		
158.3475	do	30	
158.355	Base or mobile		IP
158.3625	do	30	IP
158.370	do	4, 7	IP
158.3775	do	4, 7, 30	IP
158.385	do.		
158.3925	do	30	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
158.400	do	17.	
158.4075	do	17, 30	
158.415	do		IP
158.4225	do	30	IP
158.430	do	4, 7	IP
158.4375	do	4, 7, 30	IP
158.445	Mobile	8, 49	IP
158.460	Base or mobile	29, 36, 37, 38, 48.	
159.480	do	8, 82	IP
159.4875	do	8, 30	IP
159.495	do.		
159.5025	do	30	
159.510	do.		
159.5175	do	30	
159.525	do.		
159.5325	do	30	
159.540	do.		
159.5475	do	30	
159.555	do.		
159.5625	do	30	
159.570	do.		
159.5775	do	30	
159.585	do.		
159.5925	do	30	
159.600	do.		
159.6075	do	30	
159.615	do.		
159.6225	do	30	
159.630	do.		
159.6375	do	30	
159.645	do.		
159.6525	do	30	
159.660	do.		
159.6675	do	30	
159.675	do.		
159.6825	do	30	
159.690	do.		
159.6975	do	30	
159.705	do.		
159.7125	do	30	
159.720	do.		
159.7275	do	30	
159.735	do.		
159.7425	do	30	
159.750	do.		
159.7575	do	30	
159.765	do.		
159.7725	do	30	
159.780	do.		
159.7875	do	30	
159.795	do.		
159.8025	do	30	
159.810	do.		
159.8175	do	30	
159.825	do.		
159.8325	do	30	
159.840	do.		
159.8475	do	30	
159.855	do.		
159.8625	do	30	
159.870	do.		
159.8775	do	30	
159.885	do.		
159.8925	do	30	
159.900	do.		
159.9075	do	30	
159.915	do.		
159.9225	do	30	
159.930	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
159.9375	do	30	
159.945	do.		
159.9525	do	30	
159.960	do.		
159.9675	do	30	
159.975	do.		
159.9825	do	30	
159.990	do.		
159.9975	do	30	
160.005	do.		
160.0125	do	30	
160.020	do.		
160.0275	do	30	
160.035	do.		
160.0425	do	30	
160.050	do.		
160.0575	do	30	
160.065	do.		
160.0725	do	30	
160.080	do.		
160.0875	do	30	
160.095	do.		
160.1025	do	30	
160.110	do.		
160.1175	do	30	
160.125	do.		
160.1325	do	30	
160.140	do.		
160.1475	do	30	
160.155	do.		
160.1625	do	30	
160.170	do.		
160.1775	do	30	
160.185	do.		
160.1925	do	30	
160.200	do.		
160.2075	do	30	
160.215	do	50	LR
160.2225	do	30, 50	LR
160.230	do	50	LR
160.2375	do	30, 50	LR
160.245	do	50	LR
160.2525	do	30, 50	LR
160.260	do	50	LR
160.2675	do	30, 50	LR
160.275	do	50	LR
160.2825	do	30, 50	LR
160.290	do	50	LR
160.2975	do	30, 50	LR
160.305	do	50	LR
160.3125	do	30, 50	LR
160.320	do	50	LR
160.3275	do	30, 50	LR
160.335	do	50	LR
160.3425	do	30, 50	LR
160.350	do	50	LR
160.3575	do	30, 50	LR
160.365	do	50	LR
160.3725	do	30, 50	LR
160.380	do	50	LR
160.3875	do	30, 50	LR
160.395	do	50	LR
160.4025	do	30, 50	LR
160.410	do	50, 52	LR
160.4175	do	30, 50, 52	LR
160.425	do	50, 52	LR
160.4325	do	30, 50, 52	LR
160.440	do	50, 52	LR
160.4475	do	30, 50, 52	LR
160.455	do	50, 52	LR

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
160.4625	do	30, 50, 52	LR
160.470	do	50, 52	LR
160.4775	do	30, 50, 52	LR
160.485	do	50, 52	LR
160.4925	do	30, 50, 52	LR
160.500	do	50, 52	LR
160.5075	do	30, 50, 52	LR
160.515	do	50, 52	LR
160.5225	do	30, 50, 52	LR
160.530	do	50, 52	LR
160.5375	do	30, 50, 52	LR
160.545	do	50, 52	LR
160.5525	do	30, 50, 52	LR
160.560	do	50, 52	LR
160.5675	do	30, 50, 52	LR
160.575	do	50, 52	LR
160.5825	do	30, 50, 52	LR
160.590	do	50, 52	LR
160.5975	do	30, 50, 52	LR
160.605	do	50, 52	LR
160.6125	do	30, 50, 52	LR
160.620	do	50	LR
160.6275	do	30, 50	LR
160.635	do	50	LR
160.6425	do	30, 50	LR
160.650	do	50	LR
160.6575	do	30, 50	LR
160.665	do	50	LR
160.6725	do	30, 50	LR
160.680	do	50	LR
160.6875	do	30, 50	LR
160.695	do	50	LR
160.7025	do	30, 50	LR
160.710	do	50	LR
160.7175	do	30, 50	LR
160.725	do	50	LR
160.7325	do	30, 50	LR
160.740	do	50	LR
160.7475	do	30, 50	LR
160.755	do	50	LR
160.7625	do	30, 50	LR
160.770	do	50	LR
160.7775	do	30, 50	LR
160.785	do	50	LR
160.7925	do	30, 50	LR
160.800	do	50	LR
160.8075	do	30, 50	LR
160.815	do	50	LR
160.8225	do	30, 50	LR
160.830	do	50	LR
160.8375	do	30, 50	LR
160.845	do	50	LR
160.8525	do	30, 50	LR
160.860	do	50, 51	LR
160.8675	do	30, 50, 51	LR
160.875	do	50, 51	LR
160.8825	do	30, 50, 51	LR
160.890	do	50, 51	LR
160.8975	do	30, 50, 51	LR
160.905	do	50, 51	LR
160.9125	do	30, 50, 51	LR
160.920	do	50, 51	LR
160.9275	do	30, 50, 51	LR
160.935	do	50, 51	LR
160.9425	do	30, 50, 51	LR
160.950	do	50, 51	LR
160.9575	do	30, 50, 51	LR
160.965	do	50, 51	LR
160.9725	do	30, 50, 51	LR
160.980	do	50, 51	LR

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
160.9875	do	30, 50, 51	LR
160.995	do	50, 51	LR
161.0025	do	30, 50, 51	LR
161.010	do	50, 51	LR
161.0175	do	30, 50, 51	LR
161.025	do	50, 51	LR
161.0325	do	30, 50, 51	LR
161.040	do	50, 51	LR
161.0475	do	30, 50, 51	LR
161.055	do	50, 51	LR
161.0625	do	30, 50, 51	LR
161.070	do	50, 51	LR
161.0775	do	30, 50, 51	LR
161.085	do	50, 51	LR
161.0925	do	30, 50, 51	LR
161.100	do	50, 51	LR
161.1075	do	30, 50, 51	LR
161.115	do	50, 51	LR
161.1225	do	30, 50, 51	LR
161.130	do	50, 51	LR
161.1375	do	30, 50, 51	LR
161.145	do	50, 51	LR
161.1525	do	30, 50, 51	LR
161.160	do	50, 51	LR
161.1675	do	30, 50, 51	LR
161.175	do	50, 51	LR
161.1825	do	30, 50, 51	LR
161.190	do	50, 51	LR
161.1975	do	30, 50, 51	LR
161.205	do	50, 51	LR
161.2125	do	30, 50, 51	LR
161.220	do	50, 51	LR
161.2275	do	30, 50, 51	LR
161.235	do	50, 51	LR
161.2425	do	30, 50, 51	LR
161.250	do	50, 51	LR
161.2575	do	30, 50, 51	LR
161.265	do	50, 51	LR
161.2725	do	30, 50, 51	LR
161.280	do	50, 51	LR
161.2875	do	30, 50, 51	LR
161.295	do	50, 51	LR
161.3025	do	30, 50, 51	LR
161.310	do	50, 51	LR
161.3175	do	30, 50, 51	LR
161.325	do	50, 51	LR
161.3325	do	30, 50, 51	LR
161.340	do	50, 51	LR
161.3475	do	30, 50, 51	LR
161.355	do	50, 51	LR
161.3625	do	30, 50, 51	LR
161.370	do	50, 51	LR
161.3775	do	30, 50, 51	LR
161.385	do	50, 52	LR
161.3925	do	30, 50, 52	LR
161.400	do	50, 52	LR
161.4075	do	30, 50, 52	LR
161.415	do	50, 52	LR
161.4225	do	30, 50, 52	LR
161.430	do	50, 52	LR
161.4375	do	30, 50, 52	LR
161.445	do	50, 52	LR
161.4525	do	30, 50, 52	LR
161.460	do	50, 52	LR
161.4675	do	30, 50, 52	LR
161.475	do	50, 52	LR
161.4825	do	30, 50, 52	LR
161.490	do	50, 52	LR
161.4975	do	30, 50, 52	LR
161.505	do	50, 52	LR

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
161.5125	do	30, 50, 52	LR
161.520	do	50, 52	LR
161.5275	do	30, 50, 52	LR
161.535	do	50, 52	LR
161.5425	do	30, 50, 52	LR
161.550	do	50, 52	LR
161.5575	do	30, 50, 52	LR
161.565	do	50, 52	LR
161.610	do	78	LR
169 to 172	Mobile, operational fixed.	53.	
173.20375	Fixed or mobile	39, 40, 41, 44.	
173.210	do	40, 41, 44, 54.	
173.225	Base or mobile.		
173.2375	Fixed or mobile	39, 40, 41, 42.	
173.250	Base or mobile		IP, IW
173.2625	Fixed or mobile	39, 40, 41, 42.	
173.275	Base or mobile.		
173.2875	Fixed or mobile	39, 40, 41, 42.	
173.300	Base or mobile		IP, IW
173.3125	Fixed or mobile	39, 40, 41, 42.	
173.325	Base or mobile.		
173.3375	Fixed or mobile	39, 40, 41, 42.	
173.350	Base or mobile		
173.3625	Fixed or mobile	39, 40, 41, 42.	
173.375	Base or mobile.		
173.390	Fixed or mobile	40, 41, 44, 54.	
173.39625	do	39, 40, 41, 44.	
216 to 217	Base or mobile	55	
217 to 220	Base, mobile, or operational fixed.	55	
220 to 222	Base or mobile		
406 to 416	Operational fixed.	53.	
450 to 470	Fixed, base, or mobile.	27, 57.	
451.01875	Base or mobile	33	IW
451.025	do		IW
451.03125	do	33	IW
451.0375	do	30	IW
451.04375	do	33	IW
451.050	do		IW
451.05625	do	33	IW
451.0625	do	30	IW
451.06875	do	33	IW
451.075	do		IW
451.08125	do	33	IW
451.0875	do	30	IW
451.09375	do	33	IW
451.100	do		IW
451.10625	do	33	IW
451.1125	do	30	IW
451.11875	do	33	IW
451.125	do		IW
451.13125	do	33	IW
451.1375	do	30	IW
451.14375	do	33	IW
451.150	do		IW
451.15625	do	33	IW

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
451.1625	do	30	IW
451.16875	do	33	IW
451.175	do		IP, IW
451.18125	do	33, 84.	
451.1875	do	30, 84.	
451.19375	do	33, 84.	
451.200	do		IW
451.20625	do	33	IW
451.2125	do	30	IW
451.21875	do	33	IW
451.225	do		IP, IW
451.23125	do	33, 84.	
451.2375	do	30, 84.	
451.24375	do	33, 84.	
451.250	do		IW
451.25625	do	33	IW
451.2625	do	30	IW
451.26875	do	33	IW
451.275	do		IP, IW
451.28125	do	33, 84.	
451.2875	do	30, 84.	
451.29375	do	33, 84.	
451.300	do.		
451.30625	do	33, 84.	
451.3125	do	30, 84.	
451.31875	do	33, 84.	
451.325	do.		
451.33125	do	33, 84.	
451.3375	do	30, 84.	
451.34375	do	33, 84.	
451.350	do.		
451.35625	do	33, 84.	
451.3625	do	30, 84.	
451.36875	do	33, 84.	
451.375	do		IP, IW
451.38125	do	33, 84.	
451.3875	do	30, 84.	
451.39375	do	33, 84.	
451.400	do.		
451.40625	do	33, 84.	
451.4125	do	30, 84.	
451.41875	do	33, 84.	
451.425	do		IP, IW
451.43125	do	33, 84.	
451.4375	do	30, 84.	
451.44375	do	33, 84.	
451.450	do.		
451.45625	do	33, 84.	
451.4625	do	30, 84.	
451.46875	do	33, 84.	
451.475	do		IP, IW
451.48125	do	33, 84.	
451.4875	do	30, 84.	
451.49375	do	33, 84.	
451.500	do.		
451.50625	do	33, 84.	
451.5125	do	30, 84.	
451.51875	do	33, 84.	
451.525	do		IP, IW
451.53125	do	33, 84.	
451.5375	do	30, 84.	
451.54375	do	33, 84.	
451.550	do	4, 7	IP
451.55625	do	4, 7, 33, 84.	
451.5625	do	4, 7, 30, 84.	
451.56875	do	4, 7, 33, 84.	
451.575	do		IP, IW

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
451.58125	do	33, 84.	
451.5875	do	30, 84.	
451.59375	do	33, 84.	
451.600	do	4, 7	IP
451.60625	do	4, 7, 33, 84.	
451.6125	do	4, 7, 30, 84.	
451.61875	do	4, 7, 33, 84.	
451.625	do		IP, IW
451.63125	do	33, 84.	
451.6375	do	30, 84.	
451.64375	do	33, 84.	
451.650	do	4, 7	IP
451.65625	do	4, 7, 33, 84.	
451.6625	do	4, 7, 30, 84.	
451.66875	do	4, 7, 33, 84.	
451.675	do		IP, IW
451.68125	do	33, 84.	
451.6875	do	30, 84.	
451.69375	do	33, 84.	
451.700	do	4, 7	IP
451.70625	do	4, 7, 33, 84.	
451.7125	do	4, 7, 30, 84.	
451.71875	do	4, 7, 33, 84.	
451.725	do.		
451.73125	do	33, 84.	
451.7375	do	30, 84.	
451.74375	do	33, 84.	
451.750	do	4, 7	IP
451.75625	do	4, 7, 33, 84.	
451.7625	do	4, 7, 30, 84.	
451.76875	do	4, 7, 33, 84.	
451.775	do.		
451.78125	do	33.	
451.7875	do	30.	
451.79375	do	33.	
451.800	Base, mobile, or operational fixed.	17, 58.	
451.80625	do	17, 33, 58.	
451.8125	do	17, 30, 58.	
451.81875	do	17, 33, 58.	
451.825	Base or mobile.		
451.83125	do	33.	
451.8375	do	30.	
451.84375	do	33.	
451.850	do.		
451.85625	do	33.	
451.8625	do	30.	
451.86875	do	33.	
451.875	do.		
451.88125	do	33.	
451.8875	do	30.	
451.89375	do	33.	
451.900	do.		
451.90625	do	33.	
451.9125	do	30.	
451.91875	do	33.	
451.925	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
451.93125	do	33.	
451.9375	do	30.	
451.94375	do	33.	
451.950	do.		
451.95625	do	33.	
451.9625	do	30.	
451.96875	do	33.	
451.975	do.		
451.98125	do	33.	
451.9875	do	30.	
451.99375	do	33.	
452.000	do.		
452.00625	do	33.	
452.0125	do	30.	
452.01875	do	33.	
452.025	do.		
452.03125	do	33, 84.	
452.0375	do	30, 84.	
452.04375	do	33, 84.	
452.050	do.		
452.05625	do	33, 84.	
452.0625	do	30, 84.	
452.06875	do	33, 84.	
452.075	do.		
452.08125	do	33, 84.	
452.0875	do	30, 84.	
452.09375	do	33, 84.	
452.100	do.		
452.10625	do	33, 84.	
452.1125	do	30, 84.	
452.11875	do	33, 84.	
452.125	do.		
452.13125	do	33, 84.	
452.1375	do	30, 84.	
452.14375	do	33, 84.	
452.150	do.		
452.15625	do	33, 84.	
452.1625	do	30, 84.	
452.16875	do	33, 84.	
452.175	do.		
452.18125	do	33, 84.	
452.1875	do	30, 84.	
452.19375	do	33, 84.	
452.200	do.		
452.20625	do	33.	
452.2125	do	30.	
452.21875	do	33.	
452.225	do		
452.23125	do	33.	
452.2375	do	30.	
452.24375	do	33.	
452.250	do.		
452.25625	do	33.	
452.2625	do	30.	
452.26875	do	33.	
452.275	do.		
452.28125	do	33, 84.	
452.2875	do	30, 84.	
452.29375	do	33, 84.	
452.300	do.		
452.30625	do	33, 84.	
452.3125	do	30, 84.	
452.31875	do	33, 84.	
452.325	do		LR
452.33125	do	33.	
452.3375	do	30.	
452.34375	do	33.	
452.350	do.		
452.35625	do	33.	
452.3625	do	30.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
452.36875	do	33.	
452.375	do		LR
452.38125	do	33.	
452.3875	do	30.	
452.39375	do	33.	
452.400	do.		
452.40625	do	33, 84.	
452.4125	do	30, 84.	
452.41875	do	33, 84.	
452.425	do		LR
452.43125	do	33.	
452.4375	do	30.	
452.44375	do	33.	
452.450	do.		
452.45625	do	33.	
452.4625	do	30.	
452.46875	do	33.	
452.475	do		LR
452.48125	do	33, 84.	
452.4875	do	30, 84.	
452.49375	do	33, 84.	
452.500	do.		
452.50625	do	33, 84.	
452.5125	do	30, 84.	
452.51875	do	33, 84.	
452.525	do		LA
452.53125	do	33, 84	LA
452.5375	do	30, 84	LA
452.54375	do	33, 84	LA
452.550	do		LA
452.55625	do	33	LA
452.5625	do	30	LA
452.56875	do	33	LA
452.575	do		LA
452.58125	do	33	LA
452.5875	do	30	LA
452.59375	do	33	LA
452.600	do		LA
452.60625	do	33	LA
452.6125	do	30	LA
452.61875	do	33	LA
452.625	do.		
452.63125	do	33, 84.	
452.6375	do	30, 84.	
452.64375	do	33, 84.	
452.650	do.		
452.65625	do	33, 84.	
452.6625	do	30, 84.	
452.66875	do	33, 84.	
452.675	do.		
452.68125	do	33, 84.	
452.6875	do	30, 84.	
452.69375	do	33, 84.	
452.700	do.		
452.70625	do	33, 84.	
452.7125	do	30, 84.	
452.71875	do	33, 84.	
452.725	do.		
452.73125	do	33.	
452.7375	do	30.	
452.74375	do	33.	
452.750	do.		
452.75625	do	33, 84.	
452.7625	do	30, 84.	
452.76875	do	33, 84.	
452.775	do		LR
452.78125	do	33, 84.	
452.7875	do	30, 84.	
452.79375	do	33, 84.	
452.800	do.		

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
452.80625	do	33, 84.	
452.8125	do	30, 84.	
452.81875	do	33, 84.	
452.825	do		LR
452.83125	do	33, 84.	
452.8375	do	30, 84.	
452.84375	do	33, 84.	
452.850	do.		
452.85625	do	33, 84.	
452.8625	do	30, 84.	
452.86875	do	33, 84.	
452.875	do		LR
452.88125	do	33, 84.	
452.8875	do	30, 84.	
452.89375	do	33, 84.	
452.900	do		LR
452.90625	do	33	LR
452.9125	do	30	LR
452.91875	do	33	LR
452.925	do	59	LR
452.93125	do	33, 59	LR
452.9375	do	30, 59	LR
452.94375	do	33, 59	LR
452.950	do	59	LR
452.95625	do	33, 59	LR
452.9625	do	30, 59	LR
452.96875	do	33, 59	LR
452.975	do.		
452.98125	do	33, 84.	
452.9875	do	30, 84.	
452.99375	do	33, 84.	
453.000	do.		
453.00625	do	33.	
453.0125	do	30.	
453.01875	do	33.	
454.000	do	8	IP
456.01875	do	33	IW
456.025	Mobile		IW
456.03125	do	33	IW
456.0375	do	30	IW
456.04375	do	33	IW
456.050	do		IW
456.05625	do	33	IW
456.0625	do	30	IW
456.06875	do	33	IW
456.075	do		IW
456.08125	do	33	IW
456.0875	do	30	IW
456.09375	do	33	IW
456.100	do		IW
456.10625	do	33	IW
456.1125	do	30	IW
456.11875	do	33	IW
456.125	do		IW
456.13125	do	33	IW
456.1375	do	30	IW
456.14375	do	33	IW
456.150	do		IW
456.15625	do	33	IW
456.1625	do	30	IW
456.16875	do	33	IW
456.175	do		IP, IW
456.18125	do	33, 84.	
456.1875	do	30, 84.	
456.19375	do	33, 84.	
456.200	do		IW
456.20625	do	33	IW
456.2125	do	30	IW
456.21875	do	33	IW
456.225	do		IP, IW

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
456.23125	do	33, 84.	
456.2375	do	30, 84.	
456.24375	do	33, 84.	
456.250	do		IW
456.25625	do	33	IW
456.2625	do	30	IW
456.26875	do	33	IW
456.275	do		IP, IW
456.28125	do	33, 84.	
456.2875	do	30, 84.	
456.29375	do	33, 84.	
456.300	do.		
456.30625	do	33, 84.	
456.3125	do	30, 84.	
456.31875	do	33, 84.	
456.325	do.		
456.33125	do	33, 84.	
456.3375	do	30, 84.	
456.34375	do	33, 84.	
456.350	do.		
456.35625	do	33, 84.	
456.3625	do	30, 84.	
456.36875	do	33, 84.	
456.375	do		IP, IW
456.38125	do	33, 84.	
456.3875	do	30, 84.	
456.39375	do	33, 84.	
456.400	do.		
456.40625	do	33, 84.	
456.4125	do	30, 84.	
456.41875	do	33, 84.	
456.425	do		IP, IW
456.43125	do	33, 84.	
456.4375	do	30, 84.	
456.44375	do	33, 84.	
456.450	do.		
456.45625	do	33, 84.	
456.4625	do	30, 84.	
456.46875	do	33, 84.	
456.475	do		IP, IW
456.48125	do	33, 84.	
456.4875	do	30, 84.	
456.49375	do	33, 84.	
456.500	do.		
456.50625	do	33, 84.	
456.5125	do	30, 84.	
456.51875	do	33, 84.	
456.525	do		IP, IW
456.53125	do	33, 84.	
456.5375	do	30, 84.	
456.54375	do	33, 84.	
456.550	do		IP
456.55625	do	33, 84.	
456.5625	do	30, 84.	
456.56875	do	33, 84.	
456.575	do		IP, IW
456.58125	do	33, 84.	
456.5875	do	30, 84.	
456.59375	do	33, 84.	
456.600	do		IP
456.60625	do	33, 84.	
456.6125	do	30, 84.	
456.61875	do	33, 84.	
456.625	do		IP, IW
456.63125	do	33, 84.	
456.6375	do	30, 84.	
456.64375	do	33, 84.	
456.650	do		IP
456.65625	do	33, 84.	
456.6625	do	30, 84.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
456.66875	do	33, 84.	
456.675	do		IP, IW
456.68125	do	33, 84.	
456.6875	do	30, 84.	
456.69375	do	33, 84.	
456.700	do		IP
456.70625	do	33, 84.	
456.7125	do	30, 84.	
456.71875	do	33, 84.	
456.725	do.		
456.73125	do	33, 84.	
456.7375	do	30, 84.	
456.74375	do	33, 84.	
456.750	do		IP
456.75625	do	33, 84.	
456.7625	do	30, 84.	
456.76875	do	33, 84.	
456.775	do.		
456.78125	do	33.	
456.7875	do	30.	
456.79375	do	33.	
456.800	Base, mobile, or operational fixed.	17, 58.	
456.80625	do	17, 33, 58.	
456.8125	do	17, 30, 58.	
456.81875	do	17, 33, 58.	
456.825	Mobile.		
456.83125	do	33.	
456.8375	do	30.	
456.84375	do	33.	
456.850	do.		
456.85625	do	33.	
456.8625	do	30.	
456.86875	do	33.	
456.875	do.		
456.88125	do	33.	
456.8875	do	30.	
456.89375	do	33.	
456.900	do.		
456.90625	do	33.	
456.9125	do	30.	
456.91875	do	33.	
456.925	do.		
456.93125	do	33.	
456.9375	do	30.	
456.94375	do	33.	
456.950	do.		
456.95625	do	33.	
456.9625	do	30.	
456.96875	do	33.	
456.975	do.		
456.98125	do	33.	
456.9875	do	30.	
456.99375	do	33.	
457.000	do.		
457.00625	do	33.	
457.0125	do	30.	
457.01875	do	33.	
457.025	do.		
457.03125	do	33, 84.	
457.0375	do	30, 84.	
457.04375	do	33, 84.	
457.050	do.		
457.05625	do	33, 84.	
457.0625	do	30, 84.	
457.06875	do	33, 84.	
457.075	do.		
457.08125	do	33, 84.	
457.0875	do	30, 84.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
457.09375	do	33, 84.	
457.100	do.		
457.10625	do	33, 84.	
457.1125	do	30, 84.	
457.11875	do	33, 84.	
457.125	do.		
457.13125	do	33, 84.	
457.1375	do	30, 84.	
457.14375	do	33, 84.	
457.150	do.		
457.15625	do	33, 84.	
457.1625	do	30, 84.	
457.16875	do	33, 84.	
457.175	do.		
457.18125	do	33, 84.	
457.1875	do	30, 84.	
457.19375	do	33, 84.	
457.200	do.		
457.20625	do	33.	
457.2125	do	30.	
457.21875	do	33.	
457.225	do.		
457.23125	do	33.	
457.2375	do	30.	
457.24375	do	33.	
457.250	do.		
457.25625	do	33.	
457.2625	do	30.	
457.26875	do	33.	
457.275	do.		
457.28125	do	33, 84.	
457.2875	do	30, 84.	
457.29375	do	33, 84.	
457.300	do.		
457.30625	do	33, 84.	
457.3125	do	30, 84.	
457.31875	do	33, 84.	
457.325	do		LR
457.33125	do	33.	
457.3375	do	30.	
457.34375	do	33.	
457.350	do.		
457.35625	do	33.	
457.3625	do	30.	
457.36875	do	33.	
457.375	do		LR
457.38125	do	33.	
457.3875	do	30.	
457.39375	do	33.	
457.400	do.		
457.40625	do	33, 84.	
457.4125	do	30, 84.	
457.41875	do	33, 84.	
457.425	do		LR
457.43125	do	33.	
457.4375	do	30.	
457.44375	do	33.	
457.450	do.		
457.45625	do	33.	
457.4625	do	30.	
457.46875	do	33.	
457.475	do		LR
457.48125	do	33, 84.	
457.4875	do	30, 84.	
457.49375	do	33, 84.	
457.500	do.		
457.50625	do	33, 84.	
457.5125	do	30, 84.	
457.51875	do	33, 84.	
457.525	do	12, 47, 60.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
457.53125	do	11, 12, 33, 47, 60.	
457.5375	do	11, 12, 30, 47, 60.	
457.54375	do	11, 12, 33, 47, 60.	
457.550	do	12, 47, 60.	
457.55625	do	11, 12, 33, 47, 60.	
457.5625	do	12, 30, 47, 60.	
457.56875	do	11, 12, 33, 47, 60.	
457.575	do	12, 47, 60.	
457.58125	do	11, 12, 33, 47, 60.	
457.5875	do	12, 30, 47, 60.	
457.59375	do	11, 12, 33, 47, 60.	
457.600	do	12, 47, 60.	
457.60625	do	11, 12, 33, 47, 60.	
457.6125	do	12, 30, 47, 60.	
457.61875	do	11, 12, 33, 47, 60.	
457.625	do.		
457.63125	do	33, 84.	
457.6375	do	30, 84.	
457.64375	do	33, 84.	
457.650	do.		
457.65625	do	33, 84.	
457.6625	do	30, 84.	
457.66875	do	33, 84.	
457.675	do.		
457.68125	do	33, 84.	
457.6875	do	30, 84.	
457.69375	do	33, 84.	
457.700	do.		
457.70625	do	33, 84.	
457.7125	do	30, 84.	
457.71875	do	33, 84.	
457.725	do.		
457.73125	do	33.	
457.7375	do	30.	
457.74375	do	33.	
457.750	do.		
457.75625	do	33.	
457.7625	do	30.	
457.76875	do	33.	
457.775	do		LR
457.78125	do	33, 84.	
457.7875	do	30, 84.	
457.79375	do	33, 84.	
457.800	do.		
457.80625	do	33, 84.	
457.8125	do	30, 84.	
457.81875	do	33, 84.	
457.825	do		LR
457.83125	do	33, 84.	
457.8375	do	30, 84.	
457.84375	do	33, 84.	
457.850	do.		
457.85625	do	33, 84.	
457.8625	do	30, 84.	
457.86875	do	33, 84.	
457.875	do		LR
457.88125	do	33, 84.	
457.8875	do	30, 84.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
457.89375	do	33, 84.	
457.900	do		LR
457.90625	do	33	LR
457.9125	do	30	LR
457.91875	do	33	LR
457.925	do	59	LR
457.93125	do	33, 59	LR
457.9375	do	30, 59	LR
457.94375	do	33, 59	LR
457.950	do	59	LR
457.95625	do	33, 59	LR
457.9625	do	30, 59	LR
457.96875	do	33, 59	LR
457.975	do.		
457.98125	do	33, 84.	
457.9875	do	30, 84.	
457.99375	do	33, 84.	
458.000	do.		
458.00625	do	33.	
458.0125	do	30.	
458.01875	do	33.	
459.000	Base or mobile	8	IP
460.650	do	61, 62.	
460.65625	do	33, 61, 62.	
460.6625	do	30, 61, 62, 69.	
460.66875	do	33, 61, 62.	
460.675	do	61, 62.	
460.68125	do	33, 61, 62.	
460.6875	do	30, 61, 62, 69.	
460.69375	do	33, 61, 62.	
460.700	do	61, 62.	
460.70625	do	33, 61, 62.	
460.7125	do	30, 61, 62, 69.	
460.71875	do	33, 61, 62.	
460.725	do	61, 62.	
460.73125	do	33, 61, 62.	
460.7375	do	30, 61, 62, 69.	
460.74375	do	33, 61, 62.	
460.750	do	61, 62.	
460.75625	do	33, 61, 62.	
460.7625	do	30, 61, 62, 69.	
460.76875	do	33, 61, 62.	
460.775	do	61, 62.	
460.78125	do	33, 61, 62.	
460.7875	do	30, 61, 62, 69.	
460.79375	do	33, 61, 62.	
460.800	do	61, 62.	
460.80625	do	33, 61, 62.	
460.8125	do	30, 61, 62, 69.	
460.81875	do	33, 61, 62.	
460.825	do	61, 62.	
460.83125	do	33, 61, 62.	
460.8375	do	30, 61, 62, 69.	
460.84375	do	33, 61, 62.	
460.850	do	61, 62.	
460.85625	do	33, 61, 62.	
460.8625	do	30, 61, 62, 69.	
460.86875	do	33, 61, 62.	
460.875	do	61, 62.	
460.88125	do	33, 61, 62.	
460.8875	do	30, 61, 62, 69.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
460.89375	do	33, 61, 62.	
460.900	do	63, 64, 65.	
460.90625	do	33, 63, 65, 87.	
460.9125	do	63, 65, 83 87.	
460.91875	do	33, 63, 65, 87.	
460.925	do	63, 64, 65.	
460.93125	do	33, 63, 65, 87.	
460.9375	do	63, 65, 83, 87.	
460.94375	do	33, 63, 65, 87.	
460.950	do	63, 64, 65.	
460.95625	do	33, 63, 65, 87.	
460.9625	do	63, 65, 83, 87.	
460.96875	do	33, 63, 65, 87.	
460.975	do	64, 65, 66	
460.98125	do	33, 65, 66, 87.	
460.9875	do	65, 66, 83, 87.	
460.99375	do	33, 65, 66, 87.	
461.000	do	64, 65, 66.	
461.00625	do	33, 65, 66, 87.	
461.0125	do	65, 66, 83, 87.	
461.01875	do	33, 65, 66, 87.	
461.025	do	62.	
461.03125	do	33, 86.	
461.0375	do	83, 86.	
461.04375	do	33, 86.	
461.050	do	62.	
461.05625	do	33, 86.	
461.0625	do	83, 86.	
461.06875	do	33, 86.	
461.075	do	62.	
461.08125	do	33, 86.	
461.0875	do	83, 86.	
461.09375	do	33, 86.	
461.100	do	62.	
461.10625	do	33, 86.	
461.1125	do	83, 86.	
461.11875	do	33, 86.	
461.125	do	62.	
461.13125	do	33, 86.	
461.1375	do	83, 86.	
461.14375	do	33, 86.	
461.150	do	62.	
461.15625	do	33, .	
461.1625	do	83, 86.	
461.16875	do	33, 86.	
461.175	do	62.	
461.18125	do	33, 86.	
461.1875	do	83, 86.	
461.19375	do	33, 86.	
461.200	do	62.	
461.20625	do	33, 86.	
461.2125	do	83, 86.	
461.21875	do	33, 86.	
461.225	do	62.	
461.23125	do	33, 86.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
461.2375	do	83, 86.	
461.24375	do	33, 86.	
461.250	do	62.	
461.25625	do	33, 86.	
461.2625	do	83, 86.	
461.26875	do	33, 86.	
461.275	do	62.	
461.28125	do	33, 86.	
461.2875	do	83, 86.	
461.29375	do	33, 86.	
461.300	do	62.	
461.30625	do	33, 86.	
461.3125	do	83, 86.	
461.31875	do	33, 86.	
461.325	do	62.	
461.33125	do	33, 86.	
461.3375	do	83, 86.	
461.34375	do	33, 86.	
461.350	do	62.	
461.35625	do	33, 86.	
461.3625	do	83, 86.	
461.36875	do	33, 86.	
461.375	do	62.	
461.38125	do	33, 62.	
461.3875	do	30, 62.	
461.39375	do	33, 62.	
461.400	do	62.	
461.40625	do	33, 62.	
461.4125	do	30, 62.	
461.41875	do	33, 62.	
461.425	do	62.	
461.43125	do	33, 62.	
461.4375	do	30, 62.	
461.44375	do	33, 62.	
461.450	do	62.	
461.45625	do	33, 62.	
461.4625	do	30, 62.	
461.46875	do	33, 62.	
461.475	do	62.	
461.48125	do	33, 62.	
461.4875	do	30, 62.	
461.49375	do	33, 62.	
461.500	do	62.	
461.50625	do	33, 62.	
461.5125	do	30, 62.	
461.51875	do	33, 62.	
461.525	do	62.	
461.53125	do	33, 62.	
461.5375	do	30, 62.	
461.54375	do	33, 62.	
461.550	do	62.	
461.55625	do	33, 62.	
461.5625	do	30, 62.	
461.56875	do	33, 62.	
461.575	do	62.	
461.58125	do	33, 62.	
461.5875	do	30, 62.	
461.59375	do	33, 62.	
461.600	do	62.	
461.60625	do	33, 62.	
461.6125	do	30, 62.	
461.61875	do	33, 62.	
461.625	do	62.	
461.63125	do	33, 62.	
461.6375	do	30, 62.	
461.64375	do	33, 62.	
461.650	do	62.	
461.65625	do	33, 62.	
461.6625	do	30, 62.	
461.66875	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
461.675	do	62.	
461.68125	do	33, 62.	
461.6875	do	30, 62.	
461.69375	do	33, 62.	
461.700	do	62.	
461.70625	do	33, 62.	
461.7125	do	30, 62.	
461.71875	do	33, 62.	
461.725	do	62.	
461.73125	do	33, 62.	
461.7375	do	30, 62.	
461.74375	do	33, 62.	
461.750	do	62.	
461.75625	do	33, 62.	
461.7625	do	30, 62.	
461.76875	do	33, 62.	
461.775	do	62.	
461.78125	do	33, 62.	
461.7875	do	30, 62.	
461.79375	do	33, 62.	
461.800	do	62.	
461.80625	do	33, 62.	
461.8125	do	30, 62.	
461.81875	do	33, 62.	
461.825	do	62.	
461.83125	do	33, 62.	
461.8375	do	30, 62.	
461.84375	do	33, 62.	
461.850	do	62.	
461.85625	do	33, 62.	
461.8625	do	30, 62.	
461.86875	do	33, 62.	
461.875	do	62.	
461.88125	do	33, 62.	
461.8875	do	30, 62.	
461.89375	do	33, 62.	
461.900	do	62.	
461.90625	do	33, 62.	
461.9125	do	30, 62.	
461.91875	do	33, 62.	
461.925	do	62.	
461.93125	do	33, 62.	
461.9375	do	30, 62.	
461.94375	do	33, 62.	
461.950	do	62.	
461.95625	do	33, 62.	
461.9625	do	30, 62.	
461.96875	do	33, 62.	
461.975	do	62.	
461.98125	do	33, 62.	
461.9875	do	30, 62.	
461.99375	do	33, 62.	
462.000	do	62.	
462.00625	do	33, 62.	
462.0125	do	30, 62.	
462.01875	do	33, 62.	
462.025	do	62.	
462.03125	do	33, 62.	
462.0375	do	30, 62.	
462.04375	do	33, 62.	
462.050	do	62.	
462.05625	do	33, 62.	
462.0625	do	30, 62.	
462.06875	do	33, 62.	
462.075	do	62.	
462.08125	do	33, 62.	
462.0875	do	30, 62.	
462.09375	do	33, 62.	
462.100	do	62.	
462.10625	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
462.1125	do	30, 62.	
462.11875	do	33, 62.	
462.125	do	62.	
462.13125	do	33, 62.	
462.1375	do	30, 62.	
462.14375	do	33, 62.	
462.150	do	62.	
462.15625	do	33, 62.	
462.1625	do	30, 62.	
462.16875	do	33, 62.	
462.175	do	62.	
462.18125	do	33, 84.	
462.1875	do	83, 84.	
462.19375	do	33, 84.	
462.200	do.		
462.20625	do	33, 85.	
462.2125	do	83, 85.	
462.21875	do	33, 85.	
462.225	do.		
462.23125	do	33, 85.	
462.2375	do	83, 85.	
462.24375	do	33, 85.	
462.250	do.		
462.25625	do	33, 85.	
462.2625	do	83, 85.	
462.26875	do	33, 85.	
462.275	do.		
462.28125	do	33, 85.	
462.2875	do	83, 85.	
462.29375	do	33, 85.	
462.300	do.		
462.30625	do	33, 85.	
462.3125	do	83, 85.	
462.31875	do	33, 85.	
462.325	do.		
462.33125	do	33, 85.	
462.3375	do	83, 85.	
462.34375	do	33, 85.	
462.350	do.		
462.35625	do	33, 85.	
462.3625	do	83, 85.	
462.36875	do	33, 85.	
462.375	do.		
462.38125	do	33, 85.	
462.3875	do	83, 85.	
462.39375	do	33, 85.	
462.400	do.		
462.40625	do	33, 85.	
462.4125	do	83, 85.	
462.41875	do	33, 85.	
462.425	do.		
462.43125	do	33, 85.	
462.4375	do	83, 85.	
462.44375	do	33, 85.	
462.450	do.		
462.45625	do	33, 84.	
462.4625	do	83, 84.	
462.46875	do	33, 84.	
462.475	do		IP, IW
462.48125	do	33, 84.	
462.4875	do	83, 84.	
462.49375	do	84.	
462.500	do.		
462.50625	do	33, 84.	
462.5125	do	83, 84.	
462.51875	do	33, 84.	
462.525	do		IP, IW
462.53125	do	33.	
462.750	Base	29, 36.	
462.7625	Mobile	67, 86.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
462.775	Base	29, 36.	
462.7875	Mobile	67, 86.	
462.800	Base	29, 36.	
462.8125	Mobile	67, 86.	
462.825	Base	29, 36.	
462.8375	Mobile	67, 86.	
462.850	Base	29, 36.	
462.8625	Mobile	67, 86.	
462.875	Base	29, 36.	
462.8875	Mobile	67, 86.	
462.900	Base	29, 36.	
462.9125	Mobile	67, 86.	
462.925	Base	29, 36.	
462.9375	Mobile	88	
462.94375	Base or mobile	33.	
463.200	do	62.	
463.20625	do	33, 62.	
463.2125	do	30, 62.	
463.21875	do	33, 62.	
463.225	do	62.	
463.23125	do	33, 62.	
463.2375	do	30, 62.	
463.24375	do	33, 62.	
463.250	do	62.	
463.25625	do	33, 62.	
463.2625	do	30, 62.	
463.26875	do	33, 62.	
463.275	do	62.	
463.28125	do	33, 62.	
463.2875	do	30, 62.	
463.29375	do	33, 62.	
463.300	do	62.	
463.30625	do	33, 62.	
463.3125	do	30, 62.	
463.31875	do	33, 62.	
463.325	do	62.	
463.33125	do	33, 62.	
463.3375	do	30, 62.	
463.34375	do	33, 62.	
463.350	do	62.	
463.35625	do	33, 62.	
463.3625	do	30, 62.	
463.36875	do	33, 62.	
463.375	do	62.	
463.38125	do	33, 62.	
463.3875	do	30, 62.	
463.39375	do	33, 62.	
463.400	do	62.	
463.40625	do	33, 62.	
463.4125	do	30, 62.	
463.41875	do	33, 62.	
463.425	do	62.	
463.43125	do	33, 62.	
463.4375	do	30, 62.	
463.44375	do	33, 62.	
463.450	do	62.	
463.45625	do	33, 62.	
463.4625	do	30, 62.	
463.46875	do	33, 62.	
463.475	do	62.	
463.48125	do	33, 62.	
463.4875	do	30, 62.	
463.49375	do	33, 62.	
463.500	do	62.	
463.50625	do	33, 62.	
463.5125	do	30, 62.	
463.51875	do	33, 62.	
463.525	do	62.	
463.53125	do	33, 62.	
463.5375	do	30, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
463.54375	do	33, 62.	
463.550	do	62.	
463.55625	do	33, 62.	
463.5625	do	30, 62.	
463.56875	do	33, 62.	
463.575	do	62.	
463.58125	do	33, 62.	
463.5875	do	30, 62.	
463.59375	do	33, 62.	
463.600	do	62.	
463.60625	do	33, 62.	
463.6125	do	30, 62.	
463.61875	do	33, 62.	
463.625	do	62.	
463.63125	do	33, 62.	
463.6375	do	30, 62.	
463.64375	do	33, 62.	
463.650	do	62.	
463.65625	do	33, 62.	
463.6625	do	30, 62.	
463.66875	do	33, 62.	
463.675	do	62.	
463.68125	do	33, 62.	
463.6875	do	30, 62.	
463.69375	do	33, 62.	
463.700	do	62.	
463.70625	do	33, 62.	
463.7125	do	30, 62.	
463.71875	do	33, 62.	
463.725	do	62.	
463.73125	do	33, 62.	
463.7375	do	30, 62.	
463.74375	do	33, 62.	
463.750	do	62.	
463.75625	do	33, 62.	
463.7625	do	30, 62.	
463.76875	do	33, 62.	
463.775	do	62.	
463.78125	do	33, 62.	
463.7875	do	30, 62.	
463.79375	do	33, 62.	
463.800	do	62.	
463.80625	do	33, 62.	
463.8125	do	30, 62.	
463.81875	do	33, 62.	
463.825	do	62.	
463.83125	do	33, 62.	
463.8375	do	30, 62.	
463.84375	do	33, 62.	
463.850	do	62.	
463.85625	do	33, 62.	
463.8625	do	30, 62.	
463.86875	do	33, 62.	
463.875	do	62.	
463.88125	do	33, 62.	
463.8875	do	30, 62.	
463.89375	do	33, 62.	
463.900	do	62.	
463.90625	do	33, 62.	
463.9125	do	30, 62.	
463.91875	do	33, 62.	
463.925	do	62.	
463.93125	do	33, 62.	
463.9375	do	30, 62.	
463.94375	do	33, 62.	
463.950	do	62.	
463.95625	do	33, 62.	
463.9625	do	30, 62.	
463.96875	do	33, 62.	
463.975	do	62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
463.98125	do	33, 62.	
463.9875	do	30, 62.	
463.99375	do	33, 62.	
464.000	do	62.	
464.00625	do	33, 62.	
464.0125	do	30, 62.	
464.01875	do	33, 62.	
464.025	do	62.	
464.03125	do	33, 62.	
464.0375	do	30, 62.	
464.04375	do	33, 62.	
464.050	do	62.	
464.05625	do	33, 62.	
464.0625	do	30, 62.	
464.06875	do	33, 62.	
464.075	do	62.	
464.08125	do	33, 62.	
464.0875	do	30, 62.	
464.09375	do	33, 62.	
464.100	do	62.	
464.10625	do	33, 62.	
464.1125	do	30, 62.	
464.11875	do	33, 62.	
464.125	do	62.	
464.13125	do	33, 62.	
464.1375	do	30, 62.	
464.14375	do	33, 62.	
464.150	do	62.	
464.15625	do	33, 62.	
464.1625	do	30, 62.	
464.16875	do	33, 62.	
464.175	do	62.	
464.18125	do	33, 62.	
464.1875	do	30, 62.	
464.19375	do	33, 62.	
464.200	do	62.	
464.20625	do	33, 62.	
464.2125	do	30, 62.	
464.21875	do	33, 62.	
464.225	do	62.	
464.23125	do	33, 62.	
464.2375	do	30, 62.	
464.24375	do	33, 62.	
464.250	do	62.	
464.25625	do	33, 62.	
464.2625	do	30, 62.	
464.26875	do	33, 62.	
464.275	do	62.	
464.28125	do	33, 62.	
464.2875	do	30, 62.	
464.29375	do	33, 62.	
464.300	do	62.	
464.30625	do	33, 62.	
464.3125	do	30, 62.	
464.31875	do	33, 62.	
464.325	do	62.	
464.33125	do	33, 62.	
464.3375	do	30, 62.	
464.34375	do	33, 62.	
464.350	do	62.	
464.35625	do	33, 62.	
464.3625	do	30, 62.	
464.36875	do	33, 62.	
464.375	do	62.	
464.38125	do	33, 62.	
464.3875	do	30, 62.	
464.39375	do	33, 62.	
464.400	do	62.	
464.40625	do	33, 62.	
464.4125	do	30, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
464.41875	do	33, 62.	
464.425	do	62.	
464.43125	do	33, 62.	
464.4375	do	30, 62.	
464.44375	do	33, 62.	
464.450	do	62.	
464.45625	do	33, 62.	
464.4625	do	30, 62.	
464.46875	do	33, 62.	
464.475	do	62.	
464.48125	do	33, 86.	
464.4875	do	83, 86.	
464.500	do	10, 34.	
464.5125	do	83, 86.	
464.51875	do	33, 86.	
464.525	do	62.	
464.53125	do	33, 86.	
464.5375	do	83, 86.	
464.550	do	10, 34.	
464.5625	do	83, 86.	
464.56875	do	33, .	
464.575	do	62.	
464.58125	do	33, 62.	
464.5875	do	30, 62.	
464.59375	do	33, 62.	
464.600	do	62.	
464.60625	do	33, 62.	
464.6125	do	30, 62.	
464.61875	do	33, 62.	
464.625	do	62.	
464.63125	do	33, 62.	
464.6375	do	30, 62.	
464.64375	do	33, 62.	
464.650	do	62.	
464.65625	do	33, 62.	
464.6625	do	30, 62.	
464.66875	do	33, 62.	
464.675	do	62.	
464.68125	do	33, 62.	
464.6875	do	30, 62.	
464.69375	do	33, 62.	
464.700	do	62.	
464.70625	do	33, 62.	
464.7125	do	30, 62.	
464.71875	do	33, 62.	
464.725	do	62.	
464.73125	do	33, 62.	
464.7375	do	30, 62.	
464.74375	do	33, 62.	
464.750	do	62.	
464.75625	do	33, 62.	
464.7625	do	30, 62.	
464.76875	do	33, 62.	
464.775	do	62.	
464.78125	do	33, 62.	
464.7875	do	30, 62.	
464.79375	do	33, 62.	
464.800	do	62.	
464.80625	do	33, 62.	
464.8125	do	30, 62.	
464.81875	do	33, 62.	
464.825	do	62.	
464.83125	do	33, 62.	
464.8375	do	30, 62.	
464.84375	do	33, 62.	
464.850	do	62.	
464.85625	do	33, 62.	
464.8625	do	30, 62.	
464.86875	do	33, 62.	
464.875	do	62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
464.88125	do	33, 62.	
464.8875	do	30, 62.	
464.89375	do	33, 62.	
464.900	do	62.	
464.90625	do	33, 62.	
464.9125	do	30, 62.	
464.91875	do	33, 62.	
464.925	do	62.	
464.93125	do	33, 62.	
464.9375	do	30, 62.	
464.94375	do	33, 62.	
464.950	do	62.	
464.95625	do	33, 62.	
464.9625	do	30, 62.	
464.96875	do	33, 62.	
464.975	do	62.	
464.98125	do	33, 62.	
464.9875	Mobile	67.	
465.000	Base	29, 34, 36.	
465.0125	Mobile	88.	
465.01875	do	33, 34.	
465.650	do	62, 68.	
465.65625	do	33, 62, 68.	
465.6625	do	30, 62, 68, 69.	
465.66875	do	33, 62, 68.	
465.675	do	62, 68.	
465.68125	do	33, 62, 68.	
465.6875	do	30, 62, 68, 69.	
465.69375	do	33, 62, 68.	
465.700	do	62, 68.	
465.70625	do	33, 62, 68.	
465.7125	do	30, 62, 68, 69.	
465.71875	do	33, 62, 68.	
465.725	do	62, 68.	
465.73125	do	33, 62, 68.	
465.7375	do	30, 62, 68, 69.	
465.74375	do	33, 62, 68.	
465.750	do	62, 68.	
465.75625	do	33, 62, 68.	
465.7625	do	30, 62, 68, 69.	
465.76875	do	33, 62, 68.	
465.775	do	62, 68.	
465.78125	do	33, 62, 68.	
465.7875	do	30, 62, 68, 69.	
465.79375	do	33, 62, 68.	
465.800	do	62, 68.	
465.80625	do	33, 62, 68.	
465.8125	do	30, 62, 68, 69.	
465.81875	do	33, 62, 68.	
465.825	do	62, 68.	
465.83125	do	33, 62, 68.	
465.8375	do	30, 62, 68, 69.	
465.84375	do	33, 62, 68.	
465.850	do	62, 68.	
465.85625	do	33, 62, 68.	
465.8625	do	30, 62, 68, 69.	
465.86875	do	33, 62, 68.	
465.875	do	62, 68.	
465.88125	do	33, 62, 68.	
465.8875	do	30, 62, 68, 69.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
465.89375	do	33, 62, 68.	
465.900	do	63, 64.	
465.90625	do	33, 63, 87.	
465.9125	do	63, 83, 87.	
465.91875	do	33, 63, 87.	
465.925	do	63, 64.	
465.93125	do	33, 63, 87.	
465.9375	do	63, 83, 87.	
465.94375	do	33, 63, 87.	
465.950	do	63, 64.	
465.95625	do	33, 63, 87.	
465.9625	do	63, 83, 87.	
465.96875	do	33, 63, 64.	
465.975	do	64, 66.	
465.98125	do	33, 66, 87.	
465.9875	do	66, 83, 87.	
465.99375	do	33, 66, 87.	
466.000	do	64, 66.	
466.00625	do	33, 66, 87.	
466.0125	do	66, 69, 83, 87.	
466.01875	do	33, 66, 87.	
466.025	do	62.	
466.03125	do	33, 86.	
466.0375	do	83, 86.	
466.04375	do	33, 86.	
466.050	do	62.	
466.05625	do	33, 86.	
466.0625	do	83, 86.	
466.06875	do	33, 86.	
466.075	do	62.	
466.08125	do	33, 86.	
466.0875	do	83, 86.	
466.09375	do	33, 86.	
466.100	do	62.	
466.10625	do	33, 86.	
466.1125	do	83, 86.	
466.11875	do	33, 86.	
466.125	do	62.	
466.13125	do	33, 86.	
466.1375	do	83, 86.	
466.14375	do	33, 86.	
466.150	do	62.	
466.15625	do	33, 86.	
466.1625	do	83, 86.	
466.16875	do	33, 86.	
466.175	do	62.	
466.18125	do	33, 84.	
466.1875	do	83, 84.	
466.19375	do	33, 84.	
466.200	do	62.	
466.20625	do	33, 85.	
466.2125	do	83, 85.	
466.21875	do	33, 85.	
466.225	do	62.	
466.23125	do	33, 85.	
466.2375	do	83, 85.	
466.24375	do	33, 85.	
466.250	do	62.	
466.25625	do	33, 85.	
466.2625	do	83, 85.	
466.26875	do	33, 85.	
466.275	do	62.	
466.28125	do	33, 85.	
466.2875	do	83, 85.	
466.29375	do	33, 85.	
466.300	do	62.	
466.30625	do	33, 85.	
466.3125	do	83, 85.	
466.31875	do	33, 85.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
466.325	do	62.	
466.33125	do	33, 85.	
466.3375	do	83, 85.	
466.34375	do	33, 85.	
466.350	do	62.	
466.35625	do	33, 85.	
466.3625	do	83, 85.	
466.36875	do	33, 85.	
466.375	do	62.	
466.38125	do	33, 85.	
466.3875	do	83, 85.	
466.39375	do	33, 85.	
466.400	do	62.	
466.40625	do	33, 85.	
466.4125	do	83, 85.	
466.41875	do	33, 85.	
466.425	do	62.	
466.43125	do	33, 85.	
466.4375	do	83, 85.	
466.44375	do	33, 85.	
466.450	do	62.	
466.45625	do	33, 84.	
466.4625	do	83, 84.	
466.46875	do	33, 84.	
466.475	do	62.	
466.48125	do	33, 84.	
466.4875	do	83, 84.	
466.49375	do	33, 84.	
466.500	do	62.	
466.50625	do	33, 84.	
466.5125	do	83, 84.	
466.51875	do	33, 84.	
466.525	do	62.	
466.53125	do	33, 62.	
466.5375	do	30, 62.	
466.54375	do	33, 62.	
466.550	do	62.	
466.55625	do	33, 62.	
466.5625	do	30, 62.	
466.56875	do	33, 62.	
466.575	do	62.	
466.58125	do	33, 62.	
466.5875	do	30, 62.	
466.59375	do	33, 62.	
466.600	do	62.	
466.60625	do	33, 62.	
466.6125	do	30, 62.	
466.61875	do	33, 62.	
466.625	do	62.	
466.63125	do	33, 62.	
466.6375	do	30, 62.	
466.64375	do	33, 62.	
466.650	do	62.	
466.65625	do	33, 62.	
466.6625	do	30, 62.	
466.66875	do	33, 62.	
466.675	do	62.	
466.68125	do	33, 62.	
466.6875	do	30, 62.	
466.69375	do	33, 62.	
466.700	do	62.	
466.70625	do	33, 62.	
466.7125	do	30, 62.	
466.71875	do	33, 62.	
466.725	do	62.	
466.73125	do	33, 62.	
466.7375	do	30, 62.	
466.74375	do	33, 62.	
466.750	do	62.	
466.75625	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
466.7625	do	30, 62.	
466.76875	do	33, 62.	
466.775	do	62.	
466.78125	do	33, 62.	
466.7875	do	30, 62.	
466.79375	do	33, 62.	
466.800	do	62.	
466.80625	do	33, 62.	
466.8125	do	30, 62.	
466.81875	do	33, 62.	
466.825	do	62.	
466.83125	do	33, 62.	
466.8375	do	30, 62.	
466.84375	do	33, 62.	
466.850	do	62.	
466.85625	do	33, 62.	
466.8625	do	67, 86.	
466.86875	do	33, 62.	
466.875	do	62.	
466.88125	do	33, 62.	
466.8875	do	67, 86.	
466.89375	do	33, 62.	
466.900	do	62.	
466.90625	do	33, 62.	
466.9125	do	67, 86.	
466.91875	do	33, 62.	
466.925	do	62.	
466.93125	do	33, 62.	
466.9375	do	88.	
466.94375	do	33, 62.	
466.950	do	62.	
466.95625	do	33, 62.	
466.9625	do	30, 62.	
466.96875	do	33, 62.	
466.975	do	62.	
466.98125	do	33, 62.	
466.9875	do	30, 62.	
466.99375	do	33, 62.	
467.000	do	62.	
467.00625	do	33, 62.	
467.0125	do	30, 62.	
467.01875	do	33, 62.	
467.025	do	62.	
467.03125	do	33, 62.	
467.0375	do	30, 62.	
467.04375	do	33, 62.	
467.050	do	62.	
467.05625	do	33, 62.	
467.0625	do	30, 62.	
467.06875	do	33, 62.	
467.075	do	62.	
467.08125	do	33, 62.	
467.0875	do	30, 62.	
467.09375	do	33, 62.	
467.100	do	62.	
467.10625	do	33, 62.	
467.1125	do	30, 62.	
467.11875	do	33, 62.	
467.125	do	62.	
467.13125	do	33, 62.	
467.1375	do	30, 62.	
467.14375	do	33, 62.	
467.150	do	62.	
467.15625	do	33, 62.	
467.1625	do	30, 62.	
467.16875	do	33, 62.	
467.175	do	62.	
467.18125	do	33, 62.	
467.1875	do	30, 62.	
467.19375	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
467.200	do.		
467.20625	do	33.	
467.2125	do	30.	
467.21875	do	33.	
467.225	do.		
467.23125	do	33.	
467.2375	do	30.	
467.24375	do	33.	
467.250	do.		
467.25625	do	33.	
467.2625	do	30.	
467.26875	do	33.	
467.275	do.		
467.28125	do	33.	
467.2875	do	30.	
467.29375	do	33.	
467.300	do.		
467.30625	do	33.	
467.3125	do	30.	
467.31875	do	33.	
467.325	do.		
467.33125	do	33.	
467.3375	do	30.	
467.34375	do	33.	
467.350	do.		
467.35625	do	33.	
467.3625	do	30.	
467.36875	do	33.	
467.375	do.		
467.38125	do	33.	
467.3875	do	30.	
467.39375	do	33.	
467.400	do.		
467.40625	do	33.	
467.4125	do	30.	
467.41875	do	33.	
467.425	do.		
467.43125	do	33.	
467.4375	do	30.	
467.44375	do	33.	
467.450	do.		
467.45625	do	33.	
467.4625	do	30.	
467.46875	do	33.	
467.475	do		IP, IW
467.48125	do	33.	
467.4875	do	30.	
467.49375	do	33.	
467.500	do.		
467.50625	do	33.	
467.5125	do	30.	
467.51875	do	33.	
467.525	do		IP, IW
467.53125	do	33.	
467.74375	do	33, 62.	
467.750	do	11, 12, 35, 60.	
467.75625	do	11, 12, 33, 35, 60.	
467.7625	do	11, 12, 30, 35, 60.	
467.76875	do	11, 12, 33, 35, 60.	
467.775	do	11, 12, 35, 60.	
467.78125	do	11, 12, 33, 35, 60.	
467.7875	do	11, 12, 30, 35, 60.	
467.79375	do	11, 12, 33, 35, 60.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
467.800	do	11, 12, 35, 60.	
467.80625	do	11, 12, 33, 35, 60.	
467.8125	do	11, 12, 30, 35, 60.	
467.81875	do	11, 12, 33, 35, 60.	
467.825	do	11, 12, 35, 60.	
467.83125	do	11, 12, 33, 35, 60.	
467.8375	do	11, 12, 30, 35, 60.	
467.850	do	11, 12, 35.	
467.8625	do	67.	
467.875	do	11, 12, 35.	
467.8875	do	67.	
467.900	do	11, 12, 35.	
467.9125	do	67.	
467.925	do	11, 12, 35.	
467.93125	do	33.	
467.9375	do	30, 67.	
467.94375	do	33.	
468.200	do	62.	
468.20625	do	33, 62.	
468.2125	do	30, 62.	
468.21875	do	33, 62.	
468.225	do	62.	
468.23125	do	33, 62.	
468.2375	do	30, 62.	
468.24375	do	33, 62.	
468.250	do	62.	
468.25625	do	33, 62.	
468.2625	do	30, 62.	
468.26875	do	33, 62.	
468.275	do	62.	
468.28125	do	33, 62.	
468.2875	do	30, 62.	
468.29375	do	33, 62.	
468.300	do	62.	
468.30625	do	33, 62.	
468.3125	do	30, 62.	
468.31875	do	33, 62.	
468.325	do	62.	
468.33125	do	33, 62.	
468.3375	do	30, 62.	
468.34375	do	33, 62.	
468.350	do	62.	
468.35625	do	33, 62.	
468.3625	do	30, 62.	
468.36875	do	33, 62.	
468.375	do	62.	
468.38125	do	33, 62.	
468.3875	do	30, 62.	
468.39375	do	33, 62.	
468.400	do	62.	
468.40625	do	33, 62.	
468.4125	do	30, 62.	
468.41875	do	33, 62.	
468.425	do	62.	
468.43125	do	33, 62.	
468.4375	do	30, 62.	
468.44375	do	33, 62.	
468.450	do	62.	
468.45625	do	33, 62.	
468.4625	do	30, 62.	
468.46875	do	33, 62.	
468.475	do	62.	
468.48125	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
468.4875	do	30, 62.	
468.49375	do	33, 62.	
468.500	do	62.	
468.50625	do	33, 62.	
468.5125	do	30, 62.	
468.51875	do	33, 62.	
468.525	do	62.	
468.53125	do	33, 62.	
468.5375	do	30, 62.	
468.54375	do	33, 62.	
468.550	do	62.	
468.55625	do	33, 62.	
468.5625	do	30, 62.	
468.56875	do	33, 62.	
468.575	do	62.	
468.58125	do	33, 62.	
468.5875	do	30, 62.	
468.59375	do	33, 62.	
468.600	do	62.	
468.60625	do	33, 62.	
468.6125	do	30, 62.	
468.61875	do	33, 62.	
468.625	do	62.	
468.63125	do	33, 62.	
468.6375	do	30, 62.	
468.64375	do	33, 62.	
468.650	do	62.	
468.65625	do	33, 62.	
468.6625	do	30, 62.	
468.66875	do	33, 62.	
468.675	do	62.	
468.68125	do	33, 62.	
468.6875	do	30, 62.	
468.69375	do	33, 62.	
468.700	do	62.	
468.70625	do	33, 62.	
468.7125	do	30, 62.	
468.71875	do	33, 62.	
468.725	do	62.	
468.73125	do	33, 62.	
468.7375	do	30, 62.	
468.74375	do	33, 62.	
468.750	do	62.	
468.75625	do	33, 62.	
468.7625	do	30, 62.	
468.76875	do	33, 62.	
468.775	do	62.	
468.78125	do	33, 62.	
468.7875	do	30, 62.	
468.79375	do	33, 62.	
468.800	do	62.	
468.80625	do	33, 62.	
468.8125	do	30, 62.	
468.81875	do	33, 62.	
468.825	do	62.	
468.83125	do	33, 62.	
468.8375	do	30, 62.	
468.84375	do	33, 62.	
468.850	do	62.	
468.85625	do	33, 62.	
468.8625	do	30, 62.	
468.86875	do	33, 62.	
468.875	do	62.	
468.88125	do	33, 62.	
468.8875	do	30, 62.	
468.89375	do	33, 62.	
468.900	do	62.	
468.90625	do	33, 62.	
468.9125	do	30, 62.	
468.91875	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
468.925	do	62.	
468.93125	do	33, 62.	
468.9375	do	30, 62.	
468.94375	do	33, 62.	
468.950	do	62.	
468.95625	do	33, 62.	
468.9625	do	30, 62.	
468.96875	do	33, 62.	
468.975	do	62.	
468.98125	do	33, 62.	
468.9875	do	30, 62.	
468.99375	do	33, 62.	
469.000	do	62.	
469.00625	do	33, 62.	
469.0125	do	30, 62.	
469.01875	do	33, 62.	
469.025	do	62.	
469.03125	do	33, 62.	
469.0375	do	30, 62.	
469.04375	do	33, 62.	
469.050	do	62.	
469.05625	do	33, 62.	
469.0625	do	30, 62.	
469.06875	do	33, 62.	
469.075	do	62.	
469.08125	do	33, 62.	
469.0875	do	30, 62.	
469.09375	do	33, 62.	
469.100	do	62.	
469.10625	do	33, 62.	
469.1125	do	30, 62.	
469.11875	do	33, 62.	
469.125	do	62.	
469.13125	do	33, 62.	
469.1375	do	30, 62.	
469.14375	do	33, 62.	
469.150	do	62.	
469.15625	do	33, 62.	
469.1625	do	30, 62.	
469.16875	do	33, 62.	
469.175	do	62.	
469.18125	do	33, 62.	
469.1875	do	30, 62.	
469.19375	do	33, 62.	
469.200	do	62.	
469.20625	do	33, 62.	
469.2125	do	30, 62.	
469.21875	do	33, 62.	
469.225	do	62.	
469.23125	do	33, 62.	
469.2375	do	30, 62.	
469.24375	do	33, 62.	
469.250	do	62.	
469.25625	do	33, 62.	
469.2625	do	30, 62.	
469.26875	do	33, 62.	
469.275	do	62.	
469.28125	do	33, 62.	
469.2875	do	30, 62.	
469.29375	do	33, 62.	
469.300	do	62.	
469.30625	do	33, 62.	
469.3125	do	30, 62.	
469.31875	do	33, 62.	
469.325	do	62.	
469.33125	do	33, 62.	
469.3375	do	30, 62.	
469.34375	do	33, 62.	
469.350	do	62.	
469.35625	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
469.3625	do	30, 62.	
469.36875	do	33, 62.	
469.375	do	62.	
469.38125	do	33, 62.	
469.3875	do	30, 62.	
469.39375	do	33, 62.	
469.400	do	62.	
469.40625	do	33, 62.	
469.4125	do	30, 62.	
469.41875	do	33, 62.	
469.425	do	62.	
469.43125	do	33, 62.	
469.4375	do	30, 62.	
469.44375	do	33, 62.	
469.450	do	62.	
469.45625	do	33, 62.	
469.4625	do	30, 62.	
469.46875	do	33, 62.	
469.475	do	62.	
469.48125	do	33, 86.	
469.4875	do	83, 86.	
469.500	do	10, 34.	
469.5125	do	83, 86.	
469.51875	do	33, 86.	
469.525	do	62.	
469.53125	do	33, 86.	
469.5375	do	83, 86.	
469.550	do	10, 34.	
469.5625	do	83, 86.	
469.56875	do	33, 86.	
469.575	do	62.	
469.58125	do	33, 62.	
469.5875	do	30, 62.	
469.59375	do	33, 62.	
469.600	do	62.	
469.60625	do	33, 62.	
469.6125	do	30, 62.	
469.61875	do	33, 62.	
469.625	do	62.	
469.63125	do	33, 62.	
469.6375	do	30, 62.	
469.64375	do	33, 62.	
469.650	do	62.	
469.65625	do	33, 62.	
469.6625	do	30, 62.	
469.66875	do	33, 62.	
469.675	do	62.	
469.68125	do	33, 62.	
469.6875	do	30, 62.	
469.69375	do	33, 62.	
469.700	do	62.	
469.70625	do	33, 62.	
469.7125	do	30, 62.	
469.71875	do	33, 62.	
469.725	do	62.	
469.73125	do	33, 62.	
469.7375	do	30, 62.	
469.74375	do	33, 62.	
469.750	do	62.	
469.75625	do	33, 62.	
469.7625	do	30, 62.	
469.76875	do	33, 62.	
469.775	do	62.	
469.78125	do	33, 62.	
469.7875	do	30, 62.	
469.79375	do	33, 62.	
469.800	do	62.	
469.80625	do	33, 62.	
469.8125	do	30, 62.	
469.81875	do	33, 62.	

INDUSTRIAL/BUSINESS POOL FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitations	Coordinator
469.825	do	62.	
469.83125	do	33, 62.	
469.8375	do	30, 62.	
469.84375	do	33, 62.	
469.850	do	62.	
469.85625	do	33, 62.	
469.8625	do	30, 62.	
469.86875	do	33, 62.	
469.875	do	62.	
469.88125	do	33, 62.	
469.8875	do	30, 62.	
469.89375	do	33, 62.	
469.900	do	62.	
469.90625	do	33, 62.	
469.9125	do	30, 62.	
469.91875	do	33, 62.	
469.925	do	62.	
469.93125	do	33, 62.	
469.9375	do	30, 62.	
469.94375	do	33, 62.	
469.950	do	62.	
469.95625	do	33, 62.	
469.9625	do	30, 62.	
469.96875	do	33, 62.	
469.975	do	62.	
469.98125	do	33, 62.	
470 to 512	Base or mobile	70.	
809 to 824	Mobile	71	
854 to 869	Base or mobile	71	
896 to 901	Mobile	71.	
928 and above	Operational fixed.	72.	
929 to 930	Base only	73.	
935 to 940	Base or mobile	71.	
1427 to 1432	Base, mobile or operational fixed..	55	
2,450 to 2,500	Base or mobile	74.	
5850–5925	do	90, 91	Not applicable.
10,550 to 10,680.	do	76.	

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b)(3) of this section:

(1) Use of this frequency is permitted as follows:

(i) Only entities engaged in the following activities are eligible to use this spectrum, and then only in accordance with § 90.266:

(A) Prospecting for petroleum, natural gas or petroleum products;

(B) Distribution of electric power or the distribution by pipeline of fuels or water;

(C) Exploration, its support services, and the repair of pipelines; or

(D) The repair of telecommunications circuits.

(ii) Except as provided in this part, licensees may not use these frequencies in the place of other operational circuits permitted by the Commission's rules. Circuits operating on these frequencies may be used only for the following purposes:

(A) Providing standby backup communications for circuits which have been disrupted and which directly affect the safety of life, property, or the national interest or are used for coordinating inter-utility, intra-utility, and power pool distribution of electric power;

(B) Providing operational circuits during exploration;

(C) Coordinating the repair of inter-utility, intra-utility, and power pool electric power distribution networks, or the repair of pipelines;

(D) Exploratory efforts in mining for solid fuels, minerals, and metals important to the national interest;

(E) Repair of pipelines used for the transmission of fuel or water;

(F) Services supporting the exploration for energy or mineral resources important to the national interest, without which such exploration cannot be conducted; or

(G) Coordinating the repair of wireline or point-to-point microwave circuits.

(2) [Reserved]

(3) This frequency is available for assignment only to stations utilized for geophysical purposes.

(4) Geophysical operations may use tone or impulse signaling for purposes other than indicating failure of equipment or abnormal conditions on this frequency. All such tone or impulse signaling shall be on a secondary basis and subject to the following limitations:

(i) Maximum duration of a single non-voice transmission may not exceed 3 minutes;

(ii) The bandwidth utilized for secondary tone or impulse signaling shall not exceed that authorized to the licensee for voice emission on the frequency concerned;

(iii) Frequency loading resulting from the use of secondary tone or impulse signaling will not be considered in whole or in part, as a justification for authorizing additional frequencies in the licensee's mobile service system; and

(iv) The maximum transmitter output power for tone or impulse transmissions shall not exceed 50 watts.

(5) Frequencies below 25 MHz will be assigned to base or mobile stations only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant.

(6) Frequencies may be assigned in pairs with the separation between base and mobile transmit frequencies being 5.26 MHz. A mobile station may be assigned the frequency which would normally be assigned to a base station for single frequency operation. However, this single-frequency operation may be subject to interference that would not occur to a two-frequency system. Base or mobile stations operating wholly within Standard Metropolitan Areas having 50,000 or more population (1950 Census) must be operated in the half-duplex mode.

(7) This frequency is available for assignment to geophysical stations on a secondary basis to other licensees. Geophysical stations must cease operations on this frequency immediately upon receiving notice that interference is being caused to mobile service stations.

(8) This frequency is primarily available for oil spill containment and cleanup operations and for training and drills essential in the preparations for the containment and cleanup of oil spills. It is secondarily available for general base-mobile operations on a noninterference basis. Secondary users of this frequency are required to forego its use should oil spill containment and cleanup activities be present in their area of operation or upon notice by the Commission or a primary user that harmful interference is being caused to oil spill containment or cleanup activities in other areas.

(9) Operation on this frequency is secondary to stations in the maritime mobile service operating in accordance with the International table of frequency allocations.

(10) This frequency will be assigned only to stations used in itinerant operations, except within 56 km (35 miles) of Detroit, Mich., where it may be assigned for either itinerant or permanent area operations (*i.e.*, general use).

(11) Operation on this frequency is limited to a maximum output power of 2 watts; and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base or fixed station on a secondary basis to mobile service operations, Provided, that the separation between the control point and the center of the radiating portion of the antenna of any units so used does not exceed 8 m (25 ft.).

(12) This frequency may not be used aboard aircraft in flight.

(13) This frequency is shared with the Public Safety Pool.

(14) Operation on this frequency is limited to a maximum output power of 1 watt and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base or fixed station on a secondary basis to mobile service operations, provided that the separation between the control point and the center of the radiating portion of the antenna of any units so used does not exceed 8m (25 ft.).

(15) This Government frequency is available for shared Government/non-Government use by stations engaged in oil spill containment and cleanup operations and for training and drills essential in the preparation for containment and cleanup of oil spills. Such use will be confined to inland and coastal waterways.

(16) This frequency may be assigned only to stations operating in an interconnected or coordinated utility system in accordance with an operational communications plan which sets forth all points of communications. Authorizations at variance with an established operational communications plan will be made only on a secondary basis.

(17) This frequency will be assigned only to stations used in itinerant operations.

(18) This frequency is also used on a secondary basis for cordless telephones under part 15 of this chapter.

(19) In addition to single frequency operation, this frequency is available

to base and mobile stations for the paired frequency mode of operation. For two frequency systems, the separation between base and mobile transmit frequencies is 500 kHz with the base stations transmitting on the higher of the two frequencies.

(20) In the State of Alaska only, the frequency 44.10 MHz is available for assignment on a primary basis to stations in the Common Carrier Rural Radio Service utilizing meteor burst communications. The frequency may be used by private radio stations for meteor burst communications on a secondary, non-interference basis. Usage shall be in accordance with parts 22 and 90 of this chapter. Stations utilizing meteor burst communications shall not cause harmful interference to stations of other radio services operating in accordance with the allocation table.

(21) In the State of Alaska only, the frequency 44.20 MHz is available for assignment on a primary basis to private land mobile radio stations utilizing meteor burst communications. The frequency may be used by common carrier stations for meteor burst communications on a secondary, non-interference basis. Usage shall be in accordance with parts 22 and 90 of this chapter. Stations utilizing meteor burst communications shall not cause harmful interference to stations of other radio services operating in accordance with the allocation table.

(22) The frequencies available for use at operational fixed stations in the band 72-76 MHz are listed in § 90.257(a)(1). These frequencies are shared with other services and are available only in accordance with the provisions of § 90.257. Seismic telemetry transmitters certificated with 1 watt or less power and a frequency tolerance not exceeding ±0.005% may be used as temporary operational fixed stations.

(23) This frequency is shared with fixed stations in other services and is subject to no protection from interference.

(24) All operations on this frequency are subject to the provisions of § 90.257(b).

(25) This frequency is shared with the Radio Control (R/C) Service, of the part 95 Personal Radio Services, where it is used solely for the radio control of models.

(26) Pulsed modulations will not be authorized on this frequency.

(27) Assignment of frequencies in this band are subject to the provisions of § 90.173. In the 150–170 MHz band, licensees as of August 18, 1995 who operate systems that are 2.5 kHz removed from regularly assignable frequencies may continue to operate on a secondary, non-interference basis after August 1, 2003.

(28) In Puerto Rico and the Virgin Islands this frequency is subject to the following:

(i) This frequency is assigned only for one-way paging communications to mobile receivers. Only A1D, A2D, A3E, F1D, F2D, F3E, or G3E emissions may be authorized. Licensees may provide one-way paging communications on this frequency to individuals, persons eligible for licensing under subparts B or C of this part, to representatives of Federal Government agencies, and foreign governments and their representatives; and

(ii) This frequency will not be assigned to stations for use at temporary locations.

(29) This frequency will be authorized a channel bandwidth of 25 kHz. Except when limited elsewhere, one-way paging transmitters on this frequency may operate with an output power of 350 watts.

(30) This frequency will be assigned with an authorized bandwidth not to exceed 11.25 kHz. In the 450–470 MHz band, secondary telemetry operations pursuant to § 90.238(e) will be authorized on this frequency.

(31) Use of this frequency is limited to stations located in Puerto Rico and the Virgin Islands.

(32) This frequency is not available to stations located in Puerto Rico and the Virgin Islands.

(33) This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

(34) Operation on this frequency is limited to a maximum output power of 35 watts.

(35) This frequency may be used for mobile operation for radio remote control and telemetering functions. A1D,

A2D, F1D, or F2D emission may be authorized and mobile stations used to control remote objects or devices may be operated on the continuous carrier transmit mode.

(36) This frequency is assigned only for one-way paging communications to mobile receivers. Only A1D, A2D, A3E, F1D, F2D, F3E, or G3E emissions may be authorized. Licensees may provide one-way paging communications on this frequency to individuals, persons eligible for licensing under subparts B or C of this part, to representatives of Federal Government agencies, and foreign governments and their representatives.

(37) This frequency is available on a secondary basis to one-way paging communications.

(38) This frequency will not be assigned to stations for use at temporary locations.

(39) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 2.8 kHz and the maximum frequency deviation may not exceed 2.5 kHz. For AM transmitters the highest modulating frequency may not exceed 2.0 kHz. The carrier frequency must be maintained within 0.0005 percent, and the authorized bandwidth may not exceed 6 kHz.

(40) This frequency is shared with the Public Safety Pool for remote control and telemetry operations.

(41) Operational fixed stations must employ directional antennas having a front-to-back ratio of at least 20 dB. Omnidirectional antennas having unity gain may be employed for stations communicating with at least three receiving locations separated by 160 deg. of azimuth.

(42) The maximum effective radiated power (ERP) may not exceed 20 watts for fixed stations and 2 watts for mobile stations. The height of the antenna system may not exceed 15.24 meters (50 ft.) above the ground. All such operation is on a secondary basis to adjacent channel land mobile operations.

(43) This frequency is available for the following:

(i) Assignment to multiple address fixed stations employing omnidirectional antennas used for power utility peak load shaving and shedding and to mobile stations used for the remote control of objects and devices. The maximum power that may be authorized to fixed stations is 300 watts output, and the maximum power that may be authorized for mobile stations is 1 watt output. This frequency may also be assigned to operational fixed stations employing directional antenna systems (front-to-back ratio of 20 dB) when such stations are located at least 120 km. (75 mi.) from the boundaries of any urbanized area of 200,000 or more population. (U.S. Census of Population, 1960). The maximum power output of the transmitter for such fixed stations may not exceed 50 watts. A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, or G2D emission may be authorized; or

(ii) On a secondary basis for remote control and telemetry operations, subject to paragraphs (c)(41), (42), (43), (46), and (47) of this section.

(44) The maximum output power of the transmitter may not exceed 50 watts for fixed stations and 1 watt for mobile stations. A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, or G2D emission may be authorized, and mobile stations used to control remote objects and devices may be operated in the continuous transmit mode.

(45) [Reserved]

(46) This frequency is limited to a maximum power of 20 watts.

(47) This frequency may be used for mobile operation for remote control and telemetering functions. A1D, A2D, F1D, or F2D emission may be authorized. The use of the continuous carrier transmit mode for these purposes is permitted only for stations authorized and continuously licensed since before May 21, 1971.

(48) Operation on this frequency is limited to a maximum output power of 20 watts.

(49) Operation on this frequency is limited to a maximum output power of 75 watts.

(50) This frequency may also be used for the transmission of tone or voice communications, including such communications when prerecorded, for purposes of automatically indicating abnormal conditions of trackage and railroad rolling stock when in motion, on a secondary basis to other stations on

this frequency. All such operations shall be subject to the following:

(i) The output power shall not exceed 30 watts;

(ii) The bandwidth used shall not exceed that authorized to the licensee for voice transmissions on the frequency concerned;

(iii) The station shall be so designed and installed that it can normally be activated only by its associated automatic control equipment and, in addition, it shall be equipped with a time delay or clock device which will deactivate the station within three (3) minutes following activation by the last car in the train; and

(iv) Stations authorized pursuant to the provisions of this paragraph are exempt from the station identification requirements of § 90.425.

(51) In Puerto Rico and the Virgin Islands only, this frequency is available on a shared basis with remote pickup broadcast stations.

(52) In Puerto Rico and the Virgin Islands only, this frequency is available to all stations operating in the Industrial/Business Pool and may be coordinated by any frequency coordinator certified in the Industrial/Business Pool.

(53) Frequencies in this band will be assigned only for transmitting hydrological or meteorological data or for low power wireless microphones in accordance with the provisions of § 90.265.

(54) For FM transmitters the sum of the highest modulating frequency and the amount of frequency deviation may not exceed 1.7 kHz and the maximum deviation may not exceed 1.2 kHz. For AM transmitters the highest modulating frequency may not exceed 1.2 kHz. The carrier frequency must be maintained within 0.0005 percent and the authorized bandwidth may not exceed 3 kHz.

(55) This band is available to stations operating in this service subject to the provisions of § 90.259.

(56) Subpart T of this part contains rules for assignment of frequencies in the 220–222 MHz band.

(57) The requirements for secondary fixed use of frequencies in this band are set forth in § 90.261.

(58) Operational fixed assignments on this frequency will only be made to an itinerant fixed control or relay station on a secondary basis to land-mobile stations in the Industrial/Business Pool, provided that the fixed relay or control station is to be associated with base and mobile facilities authorized to use other frequencies available for itinerant operation in the Industrial/Business Pool. All such use of these frequencies for fixed systems is limited to locations 161 or more km. (100 mi.) from the center of any urbanized area of 200,000 or more population, except that the distance may be 120 km. (75 mi.) if the output power does not exceed 20 watts. All such fixed systems are limited to a maximum of two frequencies and must employ directional antennas with a front-to-back ratio of at least 15 dB. The centers of urbanized areas of 200,000 or more population are determined from the appendix, page 226, of the U.S. Commerce publication, ''Air Line Distance Between Cities in the United States.'' Urbanized areas of 200,000 or more population are defined in the U.S. Census of Population, 1960, volume 1, table 23, page 1–50.

(59) This frequency may be assigned primarily for stations used for the purpose of controlling slave locomotives that are placed within a train to assist the lead locomotive by providing, among other functions, auxiliary starting, pulling, and braking actions. Additionally, on a secondary basis this frequency may be assigned for remote control of all types of locomotives and, within a railroad yard or terminal area, for remote control of cab indicator devices placed with a locomotive to give visual signals to the operator of the locomotive. (A1, A2, F1 or F2 emissions may be authorized.)

(60)(i) This frequency is available for voice or non-voice communications concerned with cargo handling from a dock or cargo handling facility, a vessel alongside the dock, or cargo handling facility. The effective radiated power (ERP) shall not exceed 2 watts. Mobile relay stations may be temporarily installed on vessels located at or in the vicinity of a dock or cargo handling facility. The center of the radiating system of the mobile relay shall be located no more than 3 meters (10

feet) above the vessel's highest working dock.

(ii) This frequency is also available for low power non-cargo handling operations, both voice and non-voice, on a secondary basis to cargo handling communications. Such operations are not subject to the power limitations in paragraph (c)(60)(i) of this section on the following frequencies: 457.525 MHz, 457.550 MHz, 457.5625 MHz, 457.575 MHz, 457.5875 MHz, 457.600 MHz, and 457.6125 MHz. This frequency will not be assigned for non-cargo handling operations at temporary locations.

(iii) For mobile relay operations under paragraph (c)(60)(i) of this section, frequency pairing is as follows:

Mobile relay (MHz) [1]	Mobile (MHz)
457.525	467.750
457.53125	467.75625
457.5375	467.7625
457.54375	467.76875
457.550	467.775
457.55625	467.78125
457.5625	467.7875
457.56875	467.79375
457.575	467.800
457.58125	467.80625
457.5875	467.8125
457.59375	467.81875
457.600	467.825
457.60625	467.83125
457.6125	.....
457.61875	.....

[1] The mobile relay frequencies may also be used for single frequency simplex.

(61) This frequency is available for assignment as follows:

(i) To persons furnishing commercial air transportation service or, pursuant to § 90.179, to an entity furnishing radio communications service to persons so engaged, for stations located on or near the airports listed in paragraph (c)(61)(iv) of this section. Stations will be authorized on a primary basis and may be used only in connection with servicing and supplying of aircraft. Operation on this frequency is limited to a maximum effective radiated power (ERP) of 100 watts at locations within 16 km (10 miles) of the coordinates of the listed airports.

(ii) To stations in the Industrial/Business Pool for secondary use at locations 80 km (approximately 50 miles) or more from the coordinates of the listed airports. Operation will be limited to a maximum ERP of 300 watts.

(iii) To stations in the Industrial/Business Pool for secondary use at locations greater than 16 km (approximately 10 miles) but less than 80 km (approximately 50 miles) from the coordinates of the listed airports. Operation will be limited to a maximum ERP of 10 watts. Use of this frequency is restricted to the confines of an industrial complex or manufacturing yard area. Stations licensed prior to April 25, 2005, may continue to operate with facilities authorized as of that date.

(iv) The airports and their respective reference coordinates are (coordinates are referenced to North American Datum 1983 (NAD83)):

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
Aberdeen, SD: Aberdeen Regional (ABR)	45°26′56.6″	98°25′18.6″
Agana, GU: Guam International (GUM)	13°29′00.4″	144°47′45.5″ E
Akron, OH: Akron-Canton Regional (CAK)	40°54′58.7″	81°26′32.9″
Alamosa, CO: San Luis Valley Regional/Bergman Field (ALS)	37°26′05.7″	105°51′59.6″
Albany, NY: Albany Int'l (ALB)	42°44′53.2″	73°48′10.7″
Albuquerque, NM: Albuquerque International Sunport (ABQ)	35°02′24.8″	106°36′33.1″
Allentown-Bethlehem, PA: Lehigh Valley Int'l (ABE)	40°39′08.5″	75°26′25.5″
Amarillo, TX: Amarillo International (AMA)	35°13′09.7″	101°42′21.3″
Anchorage, AK: Ted Stevens Anchorage International (ANC)	61°10′27.6″	149°59′46.3″
Appleton, WI: Outagamie County Regional (ATW)	44°15′26.7″	88°31′10.1″
Aspen, CO: Aspen-Pitkin County/Sardy Field (ASE)	39°13′23.4″	106°52′07.9″
Atlanta, GA:		
Atlanta International (ATL)	33°38′25.6″	84°25′37.0″
Dekalb-Peachtree (PDK)	33°52′32.2″	84°18′07.1″
Fulton County (FTY)	33°46′44.9″	84°31′16.9″
Austin, TX: Austin Bergstrom International (AUS)	30°11′40.3″	97°40′11.5″
Bakersfield, CA: Meadows Field (BFL)	35°26′00.9″	119°03′24.4″
Baltimore, MD: Baltimore-Washington Int'l (BWI)	39°10′31.5″	76°40′05.5″
Baton Rouge, LA: Baton Rouge Metropolitan (BTR)	30°31′59.4″	91°08′58.7″
Billings, MT: Billings Logan International (BIL)	45°48′27.6″	108°32′34.3″
Birmingham, AL: Birmingham Int'l (BHM)	33°33′46.6″	86°45′12.8″

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
Bismarck, ND: Bismarck Municipal (BIS)	46°46′21.8″	100°44′44.7″
Boise, ID: Boise Air Terminal (BOI)	43°33′52.0″	116°13′22.0″
Boston, MA: Logan International (BOS)	42°21′51.7″	71°00′18.7″
Bozeman, MT: Gallatin Field (BZN)	45°46′36.8″	111°09′10.8″
Bridgeport, CT: Sikorsky Memorial (BDR)	41°09′48.5″	73°07′34.2″
Buffalo, NY: Buffalo Niagara Int'l (BUF)	42°56′25.9″	78°43′55.8″
Burlington, VT: Burlington Int'l (BTV)	44°28′18.7″	73°09′11.8″
Cedar Rapids, IA: The Eastern Iowa (CID)	41°53′04.5″	91°42′39.1″
Charleston, SC: Charleston AFB/International (CHS)	32°53′55.1″	80°02′25.8″
Charlotte, NC: Charlotte-Douglas Int'l (CLT)	35°12′50.4″	80°56′35.3″
Chattanooga, TN: Lovell (CHA)	35°02′06.9″	85°12′13.6″
Chicago, IL-Northwest, IN:		
Chicago-Wheeling-Palwaukee (PWK)	42°06′51.1″	87°54′05.3″
Meigs (CGX)	41°51′31.8″	87°36′28.5″
South Bend Regional (SBN)	41°42′32.2″	86°19′06.5″
Midway (MDW)	41°47′09.5″	87°45′08.7″
O'Hare International (ORD)	41°58′46.5″	87°54′16.1″
West Chicago-Dupage (DPE)	41°54′24.8″	88°14′54.3″
Cincinnati, OH:		
Cincinnati-Blue Ash (ISZ)	39°14′48.1″	84°23′20.3″
Lunken (LUK)	39°06′12.0″	84°25′07.0″
Cleveland, OH:		
Burke Lakefront (BKL)	41°31′03.0″	81°41′00.0″
Cuyahoga County (CGF)	41°33′54.5″	81°29′10.9″
Hopkins International (CLE)	41°24′39.2″	81°50′57.8″
Columbia, SC: Columbia Metropolitan (CAE)	33°56′19.8″	81°07′10.3″
Columbus, GA: Columbus Metropolitan (CSG)	32°30′58.8″	84°56′19.9″
Columbus, OH:		
Port Columbus Int'l (CMH)	39°59′52.8″	82°53′30.8″
Rickenbacker International (LCK)	39°48′49.5″	82°55′40.3″
Corpus Christi, TX: Corpus Christi International (CRP)	27°46′13.3″	97°30′04.4″
Covington/Cincinnati, KY: Cincinnati/Northern Kentucky Int'l (CVG)	39°02′46.1″	84°39′43.8″
Crescent City, CA: Jack McNamara Field (CEC)	41°46′48.6″	124°14′11.5″
Dallas, TX:		
Addison (ADS)	32°58′06.8″	96°50′11.2″
Dallas-Ft. Worth Int'l (DFW)	32°53′45.4″	97°02′13.9″
Dallas-Love Field (DAL)	32°50′49.6″	96°51′06.4″
Red Bird (RBD)	32°40′51.1″	96°52′05.5″
Davenport, IA (Rock Island, Moline, IL):		
Davenport Municipal (DVN)	41°36′37.0″	90°35′18.0″
Quad City (MLI)	41°26′54.7″	90°30′27.1″
Dayton, OH: Dayton International (DAY)	39°54′08.6″	84°13′09.8″
Denver, CO:		
Centennial (APA)	39°34′12.5″	104°50′57.5″
Colorado Springs Municipal (COS)	38°48′20.9″	104°42′00.9″
Jeffco (BJC)	39°54′31.6″	105°07′01.9″
Denver International (DEN)	39°51′30.3″	104°40′01.2″
Des Moines, IA: Des Moines Int'l (DSM)	41°32′05.8″	93°39′38.5″
Detroit, MI:		
Detroit City (DET)	42°24′33.1″	83°00′35.5″
Detroit Metro-Wayne County (DTW)	42°12′43.4″	83°20′55.8″
Oakland-Pontiac (PTK)	42°39′54.7″	83°25′07.4″
Willow Run (YIP)	42°14′16.5″	83°31′49.5″
Duluth, MN: Duluth International (DLH)	46°50′31.5″	92°11′37.1″
Durango, CO: Durango-La Plata County (DRO)	37°09′05.5″	107°45′13.6″
Eagle, CO: Eagle County Regional (EGE)	39°38′33.2″	106°55′03.7″
El Paso, TX: El Paso International (ELP)	31°48′24.0″	106°22′40.1″
Eugene, OR: Mahlon Sweet Field (EUG)	44°07′23.7″	123°13′07.3″
Eureka, CA: Eureka Municipal (033)	40°46′51.4″	124°12′44.2″
Fargo, ND: Hector International (FAR)	46°55′09.7″	96°48′53.9″
Flint, MI: Bishop (FNT)	42°57′55.8″	83°44′36.4″
Ft. Lauderdale-Hollywood, FL:		
Ft. Lauderdale Executive (FXE)	26°11′50.2″	80°10′14.6″
Ft. Lauderdale-Hollywd Int'l (FLL)	26°04′21.3″	80°09′09.9″
Ft. Meyers, FL: Page Field (FMY)	26°35′11.8″	81°51′47.7″
Ft. Meyers, FL: Southwest Florida International (RSW)	26°32′10.2″	81°45′18.6″
Ft. Wayne, IN: Fort Wayne International (FWA)	40°58′42.5″	85°11′42.5″
Ft. Worth, TX:		
Fort Worth Alliance (AFW)	32°59′12.5″	97°19′07.7″
Meacham (FTW)	32°49′11.2″	97°21′44.8″
Fresno, CA:		
Fresno-Chandler Downtown (FCH)	36°43′56.5″	119°49′11.6″

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
Fresno Yosemite Int'l (FAT)	36°46′34.3″	119°43′05.3″
Gainesville, FL: Gainesville Regional (GNV)	29°41′24.2″	82°16′18.4″
Grand Forks, ND: Grand Forks International (GFK)	47°56′57.3″	97°10′34.0″
Grand Rapids, MI: Gerald R. Ford Int'l (GRR)	42°52′51.0″	85°31′22.1″
Great Falls, MT: Great Falls International (GTF)	47°28′55.2″	111°22′14.5″
Green Bay, WI: Austin Straubel Int'l (GRB)	44°29′06.3″	88°07′46.5″
Greensboro, NC: Piedmont Tirad International (GSO)	36°05′51.9″	79°56′14.3″
Greer, SC: Greenville-Spartanburg Int'l (GSP)	34°53′44.4″	82°13′07.9″
Gunnison, CO: Gunnison County (GUC)	38°32′02.2″	106°55′58.9″
Hana, HI: Hana (HNM)	20°47′44.3″	156°00′52.0″
Harlingen, TX: Valley International (HRL)	26°13′42.6″	97°39′15.8″
Harrisburg, PA:		
Capital City (CXY)	40°13′01.7″	76°51′05.3″
Harrisburg Int'l (MDT)	40°11′36.6″	76°45′48.3″
Hartford, CT (Windsor Locks):		
Bradley Int'l (BDL)	41°56′20.0″	72°40′59.6″
Hartford-Brainard (HFD)	41°44′10.6″	72°39′00.8″
Hayden, CO: Yampa Valley (HDN)	40°28′52.2″	107°13′03.6″
Hilo, HI: Hilo Int'l (ITO)	19°43′12.9″	155°02′54.5″
Honolulu, HI: Honolulu International (HNL)	21°19′07.3″	157°55′20.7″
Houston, TX:		
W.P. Hobby (HOU)	29°38′43.5″	95°16′44.0″
D.W. Hooks Memorial (DWH)	30°03′42.7″	95°33′10.0″
George Bush Intercontinental (IAH)	29°58′49.7″	95°20′23.0″
Indianapolis, IN: Indianapolis Int'l (IND)	39°43′02.4″	86°17′39.8″
Jackson Hole, WY: Jackson Hole (JAC)	43°36′26.4″	110°44′15.9″
Jacksonville, FL:		
Craig Municipal (CRG)	30°20′10.8″	81°30′52.0″
Jacksonville Int'l (JAX)	30°29′38.6″	81°41′16.3″
Kalamazoo, MI: Kalamazoo/Battle Creek International (AZO)	42°14′05.5″	85°33′07.4″
Kalispell, MT: Glacier Park International (FCA)	48°18′41.1″	114°15′18.2″
Kansas City, MO-KS:		
Kansas City Int'l (MCI)	39°17′51.4″	94°42′50.1″
Kansas City Municipal Dntn (MKC)	39°07′23.7″	94°35′33.9″
Kauna Kakai, HI: Molokai (MKK)	21°09′10.4″	157°05′46.5″
Knoxville, TN: McGhee Tyson (TYS)	35°48′44.9″	83°59′34.3″
Lacrosse, WI: Lacrosse Municipal (LSE)	43°52′46.5″	91°15′24.6″
Lansing, MI: Capital City (LAN)	42°46′43.3″	84°35′14.5″
Las Vegas, NV: McCarran Int'l (LAS)	36°04′49.3″	115°09′08.4″
Lihue, HI: Lihue (LIH)	21°58′33.5″	159°20′20.3″
Lincoln, NE: Lincoln Municipal (LNK)	40°51′03.5″	96°45′33.3″
Little Rock, AR: Adams Field (LIT)	34°43′48.8″	92°13′27.3″
Los Angeles,CA:		
Burbank-Glendale-Pasadena (BUR)	34°12′02.2″	118°21′30.6″
Catalina (AVX)	33°24′17.8″	118°24′57.1″
Long Beach-Daugherty Field (LGB)	33°49′03.8″	118°09′05.8″
Los Angeles Int'l (LAX)	33°56′33.1″	118°24′29.1″
Ontario Int'l (ONT)	34°03′21.6″	117°36′04.3″
Santa Ana-John Wayne-Orange City (SNA)	33°40′32.4,″	117°52′05.6″
Louisville, KY: Louisville Int'l-Standiford Field (SDF)	38°10′27.8″	85°44′09.6″
Lubbock, TX: Lubbock International (LBB)	33°39′49.1″	101°49′22.0″
Lynchburg, VA: Lynchburg Regional-Preston Glen Field (LYH)	37°19′36.1″	79°12′01.6″
Madison, WI: Dane County Regional-Truax Field (MSN)	43°08′23.5″	89°20′15.1″
Manchester, NH: Manchester (MHT)	42°56′04.3″	71°26′13.4″
Memphis, TN: Memphis Int'l (MEM)	35°02′32.7″	89°58′36.0″
Miami, FLA:		
Miami Int'l (MIA)	25°47′35.7″	80°17′26.0″
Opa Locka (OPF)	25°54′25.2″	80°16′42.2″
Kendall-Tamiami Executive (TMB)	25°38′52.4″	80°25′58.0″
Milwaukee, WI: General Mitchell Int'l (MKE)	42°56′50.0″	87°53′47.7″
Minneapolis-St. Paul, MN: Minneapolis-St. Paul Int'l (MSP)	44°52′49.9″	93°13′00.9″
Minot, ND: Minot International (MOT)	48°15′33.8″	101°16′49.2″
Missoula, MT: Missoula International (MSO)	46°54′58.7″	114°05′26.0″
Mobile, AL: Mobile Regional (MOB)	30°41′29.1″	88°14′34.2″
Modesto, CA: Modesto City-County (MOD)	37°37′32.9″	120°57′15.9″
Monterey, CA: Monterey Peninsula (MRY)	36°35′13.1″	121°50′34.6″
Montrose, CO: Montrose Regional (MTJ)	38°30′31.9″	107°53′37.8″
Nashville, TN: Nashville Int'l (BNA)	36°07′28.1″	86°40′41.5″
New Haven, CT: Tweed-New Haven Municipal (HVN)	41°15′50.0″	72°53′13.6″
New Orleans, LA:		
Lakefront (NEW)	30°02′32.7″	90°01′41.7″
New Orleans Int'l (MYS)	29°59′36.2″	90°15′28.9″

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
Newburgh, NY: Stewart International (SWF)	41°30′14.7″	74°06′17.4″
Newport News-Hampton,VA: Newport News/Williamsburg (PHF)	37°07′54.8″	76°29′34.8″
New York-Northeast, NJ:		
Republic (FRG)	40°43′43.6″	73°24′48.3″
JFK International (JFK)	40°38′23.1″	73°46′44.1″
LaGuardia (LGA)	40°46′38.1″	73°52′21.4″
Long Island-McArthur (ISP)	40°47′42.8″	73°06′00.8″
Morristown Municipal (NJ) (MMU)	40°47′57.7″	74°24′53.5″
Newark Int'l (FWR)	40°41′32.9″	74°10′07.2″
Teterboro (NJ) (TEB)	40°51′00.4″	74°03′39.0″
Norfolk, VA: Norfolk Int'l (ORF)	36°53′40.6″	76°12′04.4″
Oklahoma City, OK:		
Wiley Post (PWA)	35°32′04.4″	97°38′49.9″
Will Rogers World (OKC)	35°23′35.1″	97°36′02.6″
Omaha, NE: Eppley Airfield (OMA)	41°18′09.1″	95°53′39.0″
Orlando, FL:		
Orlando Executive (ORL)	28°32′43.7″	81°19′58.6″
Orlando Int'l (MCO)	28°25′44.0″	81°18′57.7″
Palm Springs, CA: Palm Springs International (PSP)	33°49′46.8″	116°30′24.1″
Peoria, IL: Greater Peoria Regional (PIA)	40°39′51.3″	89°41′35.9″
Philadelphia, PA-NJ:		
Northeast Philadelphia (PNE)	40°04′55.0″	75°00′38.1″
Philadelphia Int'l (PHL)	39°52′19.0″	75°14′28.1″
Phoenix, AZ:		
Phoenix-Sky Habor Int'l (PHX)	33°26′03.0″	112°00′29.0″
Scottsdale (SDL)	33°37′22.3″	111°54′37.9″
Pittsburgh, PA:		
Allegheny County (AGC)	40°21′15.9″	79°55′48.9″
Pittsburgh Int'l (PIT)	40°29′29.3″	80°13′58.3″
Portland, ME: Portland International Jetport (PWM)	43°38′46.2″	70°18′31.5″
Portland, OR:		
Portland-Hillsboro (HIO)	45°32′25.4″	122°56′59.4″
Portland International (PDX)	45°35′19.4″	122°35′51.0″
Portland-Troutdale (TTD)	45°32′57.7″	122°24′04.5″
Providence-Pawtucket, RI-MA:		
North Central State (SFZ)	41°55′14.7″	71°29′29.0″
T.F. Green State (PVD)	41°43′26.4″	71°25′41.6″
Pueblo, CO: Pueblo Memorial (PUB)	38°17′20.7″	104°29′47.7″
Raleigh/Durham, NC: Raleigh-Durham International (RDU)	35°52′39.5″	78°47′14.9″
Rapid City, SD: Rapid City Regional (RAP)	44°02′43.2″	103°03′26.5″
Reno, NV: Reno/Tahoe International (RNO)	39°29′54.8″	119°46′05.0″
Richmond, VA: Richmond International (RIC)	37°30′18.6″	77°19′10.8″
Roanoke, VA: Roanoke Regional/Woodrum Field (ROA)	37°19′31.7″	79°58′31.5″
Rochester, MN: Rochester International (RST)	43°54′26.0″	92°29′56.4″
Rochester, NY: Greater Rochester Int'l (ROC)	43°07′07.9″	77°40′20.6″
Sacramento, CA:		
Sacramento Executive (SAC)	38°30′45.1″	121°29′36.5″
Sacramento Int'l (SMF)	38°41′43.5″	121°35′26.8″
Saginaw, MI: MBS International (MBS)	43°31′58.5″	84°04′46.7″
Saipan Isl., CQ: Saipan International (GSN)	15°07′08.4″	145°43′45.7″ E
St. Louis, MO-IL:		
Spirit of St. Louis (SUS)	38°39′42.7″	90°39′04.4″
St. Louis-Lambert Int'l (STC)	38°44′51.7″	90°21′35.9″
St. Petersburg, FL:		
Albert Whitted Municipal (SPG)	27°45′54.4″	82°37′37.1″
St. Petersburg Clearwater Int'l (PIE)	27°54′38.8″	82°41′14.9″
Salt Lake City, UT: Salt Lake City Int'l (SLC)	40°47′18.2″	111°58′39.9″
San Antonio, TX: San Antonio Int'l (SAT)	29°32′01.3″	98°28′11.2″
San Diego, CA: San Diego Lindbergh Int'l (SAN)	32°44′00.8″	117°11′22.8″
San Francisco-Oakland, CA:		
Metropolitan Oakland Int'l (OAK)	37°43′16.7″	122°13′14.6″
San Francisco Int'l (SFO)	37°37′08.4″	122°22′29.4″
San Jose, CA: San Jose Int'l (SJC)	37°21′42.7″	121°55′44.4″
San Juan, PR: Luis Munoz (SJU)	18°26′21.9″	66°00′06.6″
Santa Barbara, CA: Santa Barbara Municipal (SBA)	34°25′34.4″	119°50′25.3″
Santa Fe, NM: Santa Fe Municipal (SAF)	35°37′00.4″	106°05′17.3″
Sarasota, FL: Sarasota/Bradenton International (SRQ)	27°23′43.2″	82°33′14.8″
Savannah, GA: Savannah International (SAV)	32°07′39.3″	81°12′07.7″
Seattle, WA:		
Boeing/King County Int'l (BFI)	47°26′47.9″	122°18′33.5″
Seattle-Tacoma Int'l (SEA)	47°26′56.3″	122°18′33.5″
Shreveport, LA:		
Shreveport Downtown (DTN)	32°32′24.8″	93°44′42.1″

City and airport	Reference coordinates	
	N. Latitude	W. Longitude
Shreveport Regional (SHV)	32°26′47.9″	93°49′32.2″
Sioux City, IA: Sioux Gateway (SUX)	42°24′09.4″	96°23′03.7″
Sioux Falls, SD: Joe Foss Field (FSD)	43°34′52.9″	96°44′30.1″
South Bend, IN: South Bend Regional (SBN)	41°42′32.2″	86°19′06.5″
Spokane, WA:		
Grant County Int'l (MWH)	47°12′27.5″	119°19′12.7″
Spokane Int'l (GEG)	47°37′11.5″	117°32′01.8″
Springfield, MA:		
Barnes Municipal (BAF)	42°09′27.8″	72°42′56.2″
Westover ARB/Metropolitan (CEF)	42°11′53.8″	72°32′03.3″
Springfield, MO: Springfield-Branson Regional (SGF)	37°14′39.6″	93°23′12.7″
Syracuse, NY: Syracuse-Hancock Int'l (SYR)	43°06′40.3″	76°06′22.7″
Tacoma, WA: Tacoma Narrows (TIW)	47°16′04.6″	122°34′41.2″
Tallahassee, FL: Tallahassee Regional (TLH)	30°23′47.5″	84°21′01.2″
Tampa, FL: Tampa Int'l (TPA)	27°58′31.7″	82°31′59.7″
Telluride, CO: Telluride Regional (TEX)	37°57′13.5″	107°54′30.5″
Toledo, OH: Toledo Express (TOL)	41°35′12.5″	83°48′28.2″
Trenton, NJ-PA: Trenton Mercer (TTN)	40°16′36.1″	74°48′48.5″
Tucson, AZ: Tucson Int'l (TUS)	32°06′57.9″	110°56′27.7″
Tulsa, OK:		
R.L. Jones, Jr. (RVS)	36°02′22.7″	95°59′04.7″
Tulsa Int'l (TUL)	36°11′54.1″	95°53′17.7″
Washington, DC:		
Dulles International (IAD)	38°56′40.3″	77°27′20.9″
Ronald Reagan National (DCA)	38°51′07.5″	77°02′15.8″
Waterloo, IA: Waterloo Municipal (ALO)	42°33′25.5″	92°24′01.2″
West Palm Beach, FL: Palm Beach International (PBI)	26°40′59.4″	80°05′44.1″
White Plains, NY: Westchester County (HPN)	41°04′01.1″	73°42′27.3″
Wichita, KS: Mid-Continent (ICT)	37°38′59.9″	97°25′58.9″
Scranton, PA: Wilkes-Barre/Scranton Int'l (AVP)	41°20′17.3″	75°43′27.4″
Wilmington, DE: New Castle County (ILG)	39°40′43.4″	75°36′23.5″
Worcester, MA: Worcester Regional (ORH)	42°16′02.4″	71°52′32.6″
Youngstown-Warren, OH-PA: Youngstown-Warren Regional (YNG)	41°15′38.7″	80°40′44.8″

[1] Coordinates followed by an "E" are east longitude.

(62) This frequency may be assigned to fixed stations in the Industrial/Business Pool in accordance with the provisions of § 90.261.

(63) Within the boundaries of urbanized areas of 200,000 or more population, defined in the United States Census of Population, 1960, vol. 1, table 23, page 1–50, this frequency may be used only by persons rendering a central station commercial protection service within the service area of the radio station utilizing the frequency and may be used only for communications pertaining to safety of life and property, and for maintenance or testing of the protection facilities. Central Station commercial protection service is defined as an electrical protection and supervisory service rendered to the public from and by a central station accepted and certified by one or more of the recognized rating agencies, or the Underwriters Laboratories' (UL), or Factory Mutual System. Other stations in the Industrial/Business Pool may be licensed on this frequency only when all base, mobile relay and control stations are located at least 120 km (75 miles) from the city center or centers of the specified urbanized areas of 200,000 or more population. With respect to combination urbanized areas containing more than one city, 120 km (75 mile) separation shall be maintained from each city center which is included in the urbanized area. The locations of centers of cities are determined from appendix, page 226, of the U.S. Commerce publication ''Air Line Distance Between Cities in the United States.''

(64) Persons who render a central station commercial protection service are authorized to operate fixed stations on this frequency for the transmission of tone or impulse signals on a secondary, noninterference base-to-base/mobile operations subject to the following conditions and limitations:

(i) Secondary fixed operations may be used only for the following purposes:

(A) Indication of equipment malfunction;

(B) Actuation of a device to indicate the presence of an intruder, fire, or other hazardous condition on the property under the protection of the licensee;

(C) Indication of an abnormal condition in facilities under the protection of the licensee that, if not promptly reported, would result in danger to human life;

(D) Transmission, as may be necessary, to verify status of equipment; adjust operating conditions; or correct any abnormal condition; or

(E) Confirmation of status, or that an operation or correction has been accomplished.

(ii) The maximum duration of any one non-voice signal may not exceed 2 seconds and shall not be transmitted more than three times.

(iii) Systems employing automatic interrogation shall be limited to non-voice techniques and shall not be activated for this purpose more than 10 seconds out of any 60-second period. This 10-second frame includes both transmit and response times.

(iv) The bandwidth shall not exceed that authorized to the licensee for the primary operation on the frequency concerned.

(v) Frequency loading resulting from the use of secondary signaling will not be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(vi) A mobile service frequency may not be used exclusively for secondary signaling.

(vii) The output power shall not exceed 30 watts (at the remote site).

(viii) A1D, A2D, F1D, or F2D emission may be authorized.

(ix) The transmitter shall be designed to deactivate automatically after 3 minutes of continuous carrier radiation.

(x) Operational fixed stations authorized under this paragraph are exempt from the requirements of §§ 90.137(b), 90.429(d), 90.425 and 90.433.

(xi) On these frequencies, base, mobile relay or mobile stations may transmit secondary tone or impulse signals to receivers, as provided in this section.

(65) Licensees providing a central station commercial protection service may communicate with police or fire stations, or vehicles, on this frequency, and may install licensed transmitting units which operate on this frequency at police or fire stations, or in police or fire vehicles, if the frequency's primary use is in a base/mobile system for a central station commercial protection service.

(66) This frequency may be assigned only to persons rendering a central station commercial protection service, which is defined in paragraph (c)(63) of this section, within the service area of the radio station utilizing the frequency.

(67) Medical telemetry operations are authorized on this frequency on a secondary basis. Medical telemetry operations are subject to the provisions of § 90.267(h)(2).

(68) Each station authorized on this frequency will be classified and licensed as a mobile station. Any units of such a station, however, may provide the operational functions of a base station on a secondary basis to mobile service operations provided that the vertical separation between control point or ground level and the center of the radiating portion of the antenna of any units so used does not exceed 8 meters (approximately 25 feet). This frequency is available for assignment as follows:

(i) To persons furnishing commercial air transportation service or, pursuant to § 90.179, to an entity furnishing radio communications service to persons so engaged, for stations located on or near the airports listed in paragraph (c)(61)(iv) of this section. Stations will be authorized on a primary basis and may be used only in connection with servicing and supplying of aircraft. Operation on this frequency is limited to a maximum effective radiated power (ERP) of 40 watts at locations within 16 km (approximately 10 miles) of the coordinates of the listed airports.

(ii) To stations in the Industrial/Business Pool for secondary use at locations 80 km (approximately 50 miles) or more from the coordinates of the listed airports. Operation will be limited to a maximum ERP of 120 watts.

Wide area operation will not be permitted. The area of normal, day-to-day operations will be described in the application.

(iii) To stations in the Industrial/Business Pool for secondary use at locations greater than 16 km (approximately 10 miles) but less than 80 km (approximately 50 miles) from the coordinates of the listed airports. Operation will be limited to a maximum ERP of 6 watts. Use of this frequency is restricted to the confines of an industrial complex or manufacturing yard area. Stations licensed prior to April 25, 2005, may continue to operate with facilities authorized as of that date.

(69) This frequency may be used on a secondary, non-interference basis by a hospital or health care institution holding a license to operate a radio station under this part to operate a medical radio telemetry device with an output power not to exceed 20 milliwatts without specific authorization from the Commission.

(70) Subpart L of this part contains rules for assignment of frequencies in the 470–512 MHz band.

(71) Subpart S of this part contains rules for assignment of frequencies in the 806–821/851–866 and 896–901/935–940 MHz bands.

(72) Assignment of frequencies above 928 MHz for operational-fixed stations is governed by part 101 of this chapter.

(73) Frequencies in this band are available only for one-way paging operations in accordance with § 90.494.

(74) Available only on a shared basis with stations in other services, and subject to no protection from interference due to the operation of industrial, scientific, or medical (ISM) devices. In the band 2483.5–2500 MHz, no applications for new stations or modification to existing stations to increase the number of transmitters will be accepted. Existing licensees as of July 25, 1985, and licensees whose initial applications were filed on or before July 25, 1985, are grandfathered and their operations are on a co-primary basis with the mobile-satellite and radiodetermination-satellite services, and in the segment 2495–2500 MHz, their operations are also on a co-primary basis with part 27 fixed and mobile except aeronautical mobile service operations.

(75) [Reserved]

(76) The frequencies in the band 10.55–10.68 GHz are available for Digital Termination Systems and for associated intermodal links in the Point-to-Point Microwave Service. No new licenses will be issued under this subpart but current licenses will be renewed.

(77) All communications on this frequency must be conducted within the boundaries or confines of the licensee's business premises.

(78) Base and mobile stations authorized as of April 1, 1968, may continue to be authorized for such operation on a secondary basis to the Maritime Mobile Service. The licensees of such stations may renew, modify, reinstate, or assign their licenses in those cases where such assignment accompanies a change of ownership of the licensee's business to the assignee, and may expand existing systems when using that frequency; however, they will not be authorized to establish any new systems.

(79) Frequencies may be assigned in pairs with the separation between base and mobile transmit frequencies being 5.26 MHz. A mobile station may be assigned the frequency which would normally be assigned to a base station for single frequency operation. However, this single-frequency operation may be subject to interference that would not occur to a two-frequency system. Base or mobile stations located 80.5 km (50 miles) or less from the center or any urbanized area of 600,000 or more population (U.S. Census of Population, 1970) must be operated in the half-duplex mode.

(80) Concurrence from the Petroleum Coordinator is required only for applications for this frequency that request authorization for transmitters in Arkansas, Louisiana, Oklahoma, or Texas.

(81) Concurrence from the Petroleum Coordinator is required only for applications for this frequency that request authorization for transmitters in Arkansas, Louisiana, Oklahoma, Oregon, Texas, or Washington.

(82) After December 7, 2000 new stations will only be licensed with an authorized bandwidth not to exceed 11.25 kHz. Licensees authorized prior to December 7, 2000 may continue to use

bandwidths wider than 11.25 kHz on a co-primary basis until January 1, 2005. After January 1, 2005, all stations operating with an authorized bandwidth greater than 11.25 kHz will be secondary to adjacent channel public safety interoperability operations. (*See* § 90.20(c)(3)).

(83) Telemetry operations on this frequency will be authorized pursuant to § 90.267.

(84) Operation on this frequency is subject to the low power provisions of § 90.267. This frequency is assigned to Group A in the low power pool.

(85) Operation on this frequency is subject to the low power provisions of § 90.267. This frequency is assigned to Group B in the low power pool.

(86) Operation on this frequency is subject to the low power provisions of § 90.267. This frequency is assigned to Group C in the low power pool.

(87) Operation on this frequency is subject to the low power provisions of § 90.267. This frequency is assigned to Group D in the low power pool.

(88) Use of this frequency is on a secondary basis limited to 2 watts output power and subject to the provisions of § 90.267(h)(1), (h)(2), (h)(3) and (h)(4).

(89) The frequency may be assigned only to entities meeting the definition of a forest product licensee (*see* § 90.7). Operations are on a secondary basis to Federal Government operations including experimental stations, will not exceed 150 watts output power, and are limited to the states of Washington, Oregon, Maine, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (eastern portion).

(90) As of March 25, 2007, the FCC will cease to issue licenses for new stations in the fixed and mobile services in the following bands: 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13800–13870 kHz, and 15600–15800 kHz. As of March 29, 2009, the FCC will cease to issue licenses for new stations in the fixed and mobile services in the band 7350–7400 kHz and, in the U.S. Pacific insular areas in Region 3, the band 7400–7450 kHz. Stations licensed as of March 25, 2007 in the bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13800–13870 kHz, and 15600–15800 kHz and as of March 29, 2009 for the band 7350–7400 kHz in Region 2 and the band 7350–7450 kHz in Region 3 shall:

(1) Be limited to communications only within the United States and its insular areas;

(2) Not cause harmful interference to the broadcasting service;

(3) Be limited to the minimum power needed to achieve communications; and

(4) Take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU Radio Regulations.

(91) Subpart M of this part contains rules for assignment of frequencies in the 5850–5925 MHz band.

(d) *Additional frequencies available.* In addition to the frequencies shown in the frequency table of this section, the following frequencies are available in this service. (See also § 90.253.)

(1) Frequencies may be substituted for those available below 25 MHz in accordance with the provisions of § 90.263.

(2) Frequencies in the band 73.0–74.6 MHz may be assigned to stations authorized on or before December 1, 1961, but no new stations will be authorized in this band, nor will expansion of existing systems be permitted. (See also § 90.257).

(3) Frequencies in the 421–430 MHz band are available in the Detroit, Cleveland, and Buffalo areas in accordance with the rules in §§ 90.273 through 90.281.

(4) The following frequencies are available only in Puerto Rico and the Virgin Islands. These ''Base and Mobile'' and ''Mobile only'' frequencies are available on a shared basis with the Public Safety Pool. These ''Mobile only'' frequencies may be assigned to a control station associated with a mobile relay system if it is also assigned to the associated mobile station.

Base and mobile	Mobile only
159.240	160.410
159.2475	160.4175
159.255	160.425
159.2625	160.4325
159.270	160.440
159.2775	160.4475
159.285	160.455
159.2925	160.4625
159.300	160.470
159.3075	160.4775

Base and mobile	Mobile only
159.315	160.485
159.3225	160.4925
159.330	160.500
159.3375	160.5075
159.345	160.515
159.3525	160.5225
159.360	160.530
159.3675	160.5375
159.375	160.545
159.3825	160.5525
159.390	160.560
159.3975	160.5675
159.405	160.575
159.4125	160.5825
159.420	160.590
159.4275	160.5975
159.435	160.605
159.4425	160.6125

(5) Low power mobile stations of 100 mw or less output power used for one-way, non-voice medical telemetry operations in hospitals or in medical convalescent centers are subject to the provisions of § 90.238.

(6) [Reserved]

(7) A railroad licensee, i.e., a licensee eligible for frequencies listed in § 90.35(b)(3) of this section that are coordinated by the railroad coordinator (LR), may operate radio units at fixed locations and in moving railroad locomotives/cars that transmit on the frequency 24.10 GHz, both unmodulated continuous wave radio signals and modulated FM digital signals for the purpose of alerting motorists to the presence of an approaching train. Unattended and continuous operation of such transmitters will be permitted without additional authorization from the Commission, provided type accepted equipment or equipment authorized pursuant to §§ 90.203(b)(4) and (b)(5) of this part is used, and all other rule provisions are satisfied.

(e) *Limitation on number of frequencies assignable.* Normally only one frequency, or pair of frequencies in the paired frequency mode of operation, will be assigned for mobile service operations by a single applicant in a given area. The assignment of an additional frequency or pair of frequencies will be made only upon a satisfactory showing of need, except that:

(1) Additional frequencies above 25 MHz may be assigned in connection with operation of mobile repeaters in accordance with § 90.247 notwithstanding this limitation.

(2) [Reserved]

(3) Frequencies in the 25–50 MHz, 150–170 MHz, 450–512 MHz and 902–928 MHz bands may be assigned for the operation of Location and Monitoring Service (LMS) systems in accordance with the provisions of subpart M of this part, notwithstanding this limitation.

(4) Authorizations for multiple frequencies for geophysical operations will be granted on the frequencies governed by the limitations in paragraphs (c)(3) and (c)(4) of this section. However, each geophysical exploration party may use a maximum of four frequencies at any one time.

(5) Authorization for more than one mobile frequency in the band 72–76 MHz will be issued notwithstanding this limitation.

(6) This limitation shall not apply to paragraph (c)(1) of this section.

(7) Frequencies in the 457 and 467 MHz bands may be assigned collectively as provided by paragraph (c)(60) of this section notwithstanding this limitation.

(f) *Limitation on itinerant operation.* Base or mobile stations being utilized in itinerant operation will be authorized only on base or mobile frequencies designated for itinerant operation under paragraphs (c)(10) or (c)(17) of this section, or on other frequencies not designated for permanent use.

(g) The frequencies 9–490 kHz are used to operate electric utility Power Line Carrier (PLC) systems on power transmission lines for communications essential to the reliability and security of electric service to the public, in accordance with part 15 of this chapter. Any electric utility that generates, transmits, or distributes electrical energy for use by the general public or by the members of a cooperative organization may operate PLC systems and shall supply to a Federal Communications Commission/National Telecommunications and Information Administration recognized industry-operated entity, information on all existing, changes to existing, and proposed systems for inclusion in a data base. Such information shall include the frequency, power, location of transmitter(s), location of receivers and other technical and operational parameters, which would characterize the

system's potential both to interfere with authorized radio users, and to receive harmful interference from these users. In an agreed upon format, the industry-operated entity shall inform the FCC and the NTIA of these system characteristics prior to implementation of any proposed PLC system and shall provide monthly or periodic lists with supplements of PLC systems. The FCC and NTIA will supply appropriate application and licensing information to the notification activity regarding authorized radio stations operating in the band. PLC systems in this band operate on a non-interference basis to radio systems assigned frequencies by the NTIA or licensed by the FCC and are not protected from interference due to these radio operations.

[62 FR 18874, Apr. 17, 1997]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.35, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

EFFECTIVE DATE NOTE: At 64 FR 36262, July 6, 1999, § 90.35 was amended by revising entries in the table in paragraph (b)(3) and by adding paragraphs (c)(80) and (c)(81), effective Aug. 5, 1999. At 64 FR 50467, Sept. 17, 1999, paragraphs (c)(80), (c)(81), and the following entries in the table in paragraph (b)(3) were stayed:

153.035 MHz through 153.4025 MHz, 153.4025 MHz through 153.4625 MHz, 153.485 MHz through 153.5225 MHz, 153.545 MHz through 153.5825 MHz, 153.605 MHz through 153.6425 MHz, 153.665 MHz through 153.6675 MHz, 158.145 MHz through 158.1825 MHz, 158.205 MHz through 158.2425 MHz, 158.265 MHz through 158.3325 MHz, 158.355 MHz through 158.3775 MHz, 158.415 MHz through 158.4375 MHz, 173.250 MHz, 173.300 MHz, 173.350 MHz, 451.175 MHz, 451.225 MHz, 451.275 MHz, 451.375 MHz, 451.425 MHz, 451.475 MHz, 451.525 MHz, 451.550 MHz, 451.575 MHz, 451.600 MHz, 451.625 MHz, 451.650 MHz, 451.675 MHz, 451.700 MHz, 451.750 MHz, 452.325 MHz, 452.375 MHz, 452.425 MHz, 452.475 MHz, 452.775 MHz, 452.825 MHz, 452.875 MHz, 456.175 MHz, 456.225 MHz, 456.275 MHz, 456.375 MHz, 456.425 MHz, 456.475 MHz, 456.525 MHz, 456.550 MHz, 456.575 MHz, 456.600 MHz, 456.625 MHz, 456.650 MHz, 456.675 MHz, 456.700 MHz, 456.750 MHz, 457.325 MHz, 457.375 MHz, 457.425 MHz, 457.475 MHz, 457.775 MHz, 457.825 MHz, 457.875 MHz, 462.475 MHz, 462.525 MHz, 467.475 MHz, and 467.525 MHz

Subparts D–E [Reserved]

Subpart F—Radiolocation Service

§ 90.101 Scope.

The Radiolocation Service accommodates the use of radio methods for determination of direction, distance, speed, or position for purposes other than navigation. Rules as to eligibility for licensing, permissible communications, frequency available, and any special requirements are set forth in § 90.103. Provisions for the Location and Monitoring Service (LMS) are contained in subpart M of this part.

[60 FR 15252, Mar. 23, 1995]

§ 90.103 Radiolocation Service.

(a) *Eligibility*. The following persons are eligible for authorizations in the Radiolocation Service to operate stations to determine distance, direction, speed, or position by means of radiolocation devices, for purposes other than navigation:

(1) Any person engaged in a commercial, industrial, scientific, educational, or local government activity

(2) A corporation or association that will furnish radiolocation service to other persons.

(3) A corporation that will furnish a nonprofit radio communication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary where the party to be served is regularly engaged in any of the eligibility activities set forth in this paragraph.

(b) *Frequencies available*. The following table indicates frequencies available for assignment to stations in the Radiolocation Service, together with the class of station(s) to which they are normally assigned, and the specific assignment limitations, which are explained in paragraph (c) of this section:

RADIOLOCATION SERVICE FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitation
Kilohertz		
70 to 90	Radiolocation land or mobile.	1
90 to 110	Radiolocation land	2
110 to 130	Radiolocation land or mobile.	1
1705 to 1715	do	4, 5, 6
1715 to 1750	do	5, 6
1750 to 1800	do	5, 6

RADIOLOCATION SERVICE FREQUENCY TABLE—Continued

Frequency or band	Class of station(s)	Limitation
1900 to 1950	.....do	6, 25, 26, 27 and 28
1950 to 2000	.....do	6, 25, 27 and 28
3230 to 3400	.....do	6, 8
Megahertz		
420 to 450	.....do	21
2450 to 2500	.....do	9, 22, 23
2900 to 3100	.....do	10, 11
3100 to 3300	.....do	12
3300 to 3500	.....do	12, 13
3500 to 3650	.....do	12
5250 to 5350	.....do	12
5350 to 5460	.....do	10, 14
5460 to 5470	.....do	10, 15
5470 to 5600	.....do	10, 11
5600 to 5650	.....do	10, 16
8500 to 9000	.....do	12, 17
9000 to 9200	.....do	10, 14
9200 to 9300	.....do	12
9300 to 9500	.....do	10, 15, 18
9500 to 10,000	.....do	12
10,000 to 10,500	.....do	12, 13, 19
10,500 to 10,550	.....do	20, 22, 24
13,400 to 13,750	.....do	12
13,750 to 14,000	.....do	29
15,700 to 17,300	.....do	
24,050 to 24,250	.....do	12, 22, 24
33,400 to 36,000	.....do	12
78,000–81,000	.....do	30

(c) Explanation of assignment limitations appearing in the frequency table of paragraph (b) of this section:

(1) This frequency band is shared with and stations operating in this frequency band in this service are on a secondary basis to stations licensed in the Maritime Mobile Service.

(2) This frequency band is shared with and stations operating in this frequency band in this service are on a secondary basis to the LORAN Navigation System; all operations are limited to radiolocation land stations in accordance with footnote US104, § 2.106 of this chapter.

(3) [Reserved]

(4) The non-Federal Government radiolocation service in this band is on a secondary basis to stations in the aeronautical radionavigation service operating on 1708 kHz.

(5) Station assignments on frequencies in this band will be made subject to the conditions that the maximum output power shall not exceed 375 watts and the maximum authorized bandwidth shall not exceed 2 kHz.

(6) Because of the operation of stations having priority on the same or adjacent frequencies in this or in other countries, frequency assignments in this band may either be unavailable or may be subject to certain technical or operational limitations. Therefore, applications for frequency assignments in this band shall include information concerning the transmitter output power, the type and directional characteristics of the antenna and the minimum hours of operation (GMT).

(7) [Reserved]

(8) Frequencies in this band may only be assigned to radiolocation stations which are also assigned frequencies in the 1605–1800 kHz band, provided the use of frequencies in this band is necessary for the proper functioning of the particular radiolocation system. Operations in this band are on a secondary basis to stations operating in accordance with the Commission's table of frequency allocations contained in § 2.106 of this chapter.

(9) This band is allocated to the Radiolocation Service on a secondary basis to other fixed or mobile services and must accept any harmful interference that may be experienced from such services or from the industrial, scientific, and medical (ISM) equipment operating in accordance with part 18 of this chapter. In the 2483.5–2500 MHz band, no applications for new or modification to existing stations to increase the number of transmitters will be accepted. Existing licensees as of July 25, 1985, or on a subsequent date following as a result of submitting an application for license on or before July 25, 1985, are grandfathered and their operation is co-primary with the Radiodetermination Satellite Service.

(10) Speed measuring devices will not be authorized in this band.

(11) This frequency band is shared with and is on a secondary basis to the Maritime Radionavigation Stations (part 80) and to the Government Radiolocation Service.

(12) This frequency is shared with and is on a secondary basis to the Government Radiolocation Service.

(13) Operations in this band are limited to survey operations using transmitters with a peak power not to exceed 5 watts into the antenna.

(14) This frequency band is shared with and is on a secondary basis to the

Aeronautical Radionavigation Service (part 87) and to the Government Radiolocation Service.

(15) The non-Government Radiolocation Service in this band is secondary to the Maritime Radionavigation Stations (part 80), the Aeronautical Radionavigation Service (part 87) and the Government Radiolocation Service.

(16) This frequency band is shared with and is on a secondary basis to the Maritime Radionavigation Stations (part 80) and the Government Meteorological Aids Service.

(17) Operation in this frequency band is on a secondary basis to airborne Doppler radars at 8800 MHz.

(18) Radiolocation installations will be coordinated with the Government Meteorological Aids Service, and insofar as practicable, will be adjusted to meet the needs of that service.

(19) Operations in this band are on a secondary basis to the Amateur Radio Service (part 97). Pulsed emissions are prohibited.

(20) This band is restricted to radiolocation systems using type N0N emission with a power not to exceed 40 watts into the antenna.

(21) Non-Government radiolocation stations in the band are secondary to the Government Radiolocation Service, the Amateur Radio Service and the Amateur-Satellite Service. Pulse-ranging radiolocation stations in this band may be authorized along the shorelines of Alaska and the contiguous 48 states. Radiolocation stations using spread spectrum techniques may be authorized in the band 420–435 MHz for operation within the contiguous 48 states and Alaska. Also, stations using spread spectrum techniques shall be limited to a maximum output power of 50 watts, shall be subject to the applicable technical standards in § 90.209 until such time as more definitive standards are adopted by the Commission and shall identify in accordance with § 90.425(c)(2). Authorizations will be granted on a case-by-case basis; however, operations proposed to be located within the zones set forth in footnote US269, § 2.106 of this chapter should not expect to be accommodated.

(22) For frequencies 2455 MHz, 10,525 MHz, and 24,125 MHz, only unmodulated, continuous wave (NON) emission shall be employed. The frequency 24.10 GHz, and frequencies in the 24.20–24.25 GHz band may use NON emission along with an ancillary FM digital emission. The frequency 24.10 GHz will be used for the purpose of alerting motorists of hazardous driving conditions and the presence of emergency vehicles. Equipment operating on 24.10 GHz must keep the deviation of the FM digital signal within ±5 MHz. Equipment operating on this frequency must have a frequency stability of at least 2000 ppm and is exempt from the requirements of §§ 90.403(c), 90.403(f), and 90.429 of this part.

(23) Devices designed to operate as field disturbance sensors on frequencies between 2450 and 2500 MHz with a field strength equal to or less than 50,000 microvolts per meter at 30 meters, on a fundamental frequency, will not be licensed or certificated for use under this part. Such equipment must comply with the requirements for field disturbance sensors as set forth in part 15 of this chapter.

(24) Devices designed to operate as field disturbance sensors on frequencies between 10,500 and 10,550 MHz and between 24,050 and 24,250 MHz, with field strength equal to or less than 250,000 microvolts per meter at 30 meters, on the fundamental frequency, will not be licensed or certificated for use under this part. Such equipment must comply with the requirements for field disturbance sensors as set forth in part 15 of this chapter.

(25) Station assignments on frequencies in this band will be made subject to the conditions that the maximum output power shall not exceed 375 watts and the maximum authorized bandwidth shall not exceed 1.0 kHz.

(26) Each frequency assignment in this band is on an exclusive basis within the primary service area to which assigned. The primary service area is the area where the signal intensities are adequate for radiolocation purposes from all stations in the radiolocation system of which the station in question is a part; that is, the primary service area of the station coincides with the primary service area of the system. The normal minimum geographical

separation between stations of different licensees shall be at least 1931 km (1200 miles) when the stations are operated on the same frequency or on different frequencies separated by less than 1.0 kHz. Where geographical separation of less than 1931 km (1200 miles) is requested under these circumstances, it must be shown that the desired separation will result in a protection ratio of at least 20 decibels throughout the primary service area of other stations.

(27) Notwithstanding the bandwidth limitations otherwise set forth in this section of the rules, wideband systems desiring to operate in this band may use such bandwidth as is necessary for proper operation of the system provided that the field strength does not exceed 120 microvolts per meter per square root Hertz (120 uv/m/Hz½) at 1.6 km (1 mile). Such wideband operations shall be authorized on a secondary basis to stations operating within otherwise applicable technical standards. Applications for wideband systems in this band will be accepted beginning December 15, 1985.

(28) Until July 1, 1988, this band will be available only for licensees of existing systems operating in the 1605–1705 kHz portion of the 1605–1715 kHz band requesting modification of their authorizations to change frequencies to this band and for licensees of wideband systems. On July 1, 1988, requests for new station authorizations in this band will be accepted and, if necessary, will be subject to the random selection procedures outlined in § 1.972 of the Commission's Rules.

(29) This frequency band is shared with and is on secondary basis to the Fixed-Satellite Service and to the Government's Radiolocation, Space Research and Earth Exploration-Satellite Services. After January 1, 2000, the Government's Space Research and Earth Exploration-Satellite Services shall operate on a co-equal secondary basis with the non-Government Radiolocation Service, except that grandfathered space stations in the Tracking and Data Relay Satellite System shall continue to be protected from harmful interference.

(30) Use is limited to foreign object debris detection in airport air operations areas (see section 87.5 of this chapter). The radar must be mounted and utilized so when in use it does not, within the main beamwidth of the antenna (azimuth or elevation), illuminate a public roadway near the airport.

(d) *Other additional frequencies available.* Radiolocation stations in this service may be authorized, on request, to use frequencies allocated exclusively to Federal Government stations, in those instances where the Commission finds, after consultation with the appropriate Government agency or agencies, that such assignment is necessary or required for coordination with Government activities.

[43 FR 54791, Nov. 22, 1978]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.103, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov.*

Subpart G—Applications and Authorizations

§ 90.111 Scope.

This subpart supplements title 47, chapter 1, subpart F of the Code of Federal Regulations which establishes the requirements and conditions under which commercial and private radio stations may be licensed and used in the Wireless Telecommunications Services. The provisions of this subpart contain additional pertinent information for current and prospective licensees specific to the services governed by this part 90.

[63 FR 68963, Dec. 14, 1998]

§ 90.115 Foreign government and alien eligibility.

(a) No station authorization in the radio services governed by this part shall be granted to or held by a foreign government or its representative.

(b) No station authorization in the radio services governed by this part shall be granted to or held by an entity providing or seeking to provide commercial mobile radio services (except such entities meeting the requirements of § 20.9(c) of this chapter) if such entity is:

(1) An alien or the representative of any alien;

(2) A corporation organized under the laws of any foreign government;

(3) A corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country;

(4) A corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country, if the Commission finds that the public interest will be served by the refusal or revocation of such license.

[59 FR 59957, Nov. 21, 1994, as amended at 61 FR 55581, Oct. 28, 1996]

§ 90.119 Application requirements.

(a) Part 1, subpart F of this chapter contains the application filing procedures for the Wireless Telecommunications Services, including applications for new base, fixed, or mobile station authorizations governed by this part.

(b) If the control station(s) will operate on the same frequency as the mobile station, and if the height of the control station(s) antenna(s) will not exceed 6.1 meters (20 feet) above ground or an existing man-made structure (other than an antenna structure), there is no limit on the number of such stations which may be authorized. Appropriate items on FCC Form 601 shall be completed showing the frequency, the station class, the total number of control stations, the emission, and the output power of the highest powered control station. Applicants in the 470–512 MHz band must furnish the relevant information for all control stations.

[63 FR 68963, Dec. 14, 1998]

§ 90.121 Canadian registration.

Form 410 shall be filed by Canadian licensees desiring to operate in the United States under the terms of Article 2 and 3 of the Convention between the United States and Canada concerning operation of Certain Radio Equipment or Stations (which entered into force May 15, 1952). This form may be obtained from the Department of Communications, Ottawa, Canada. That department should also be consulted by U.S. licensees desiring to operate in Canada.

§ 90.127 Submission and filing of applications.

(a) Applications should be filed in accordance with part 1, subpart F of this chapter.

(b) Each application shall limit its request for authorized mobile transmitters and paging receivers to:

(1) Mobile transmitters and paging receivers that will be installed and operated immediately after authorization issuance.

(2) Mobile transmitters and paging receivers for which purchase orders have already been signed and which will be in use within eight months of the authorization date.

(c) All applications for modification of license and renewal of license must include the number of mobile transmitters and paging receivers in use on the licensed facilities.

[63 FR 68963, Dec. 14, 1998]

§ 90.129 Supplemental information to be routinely submitted with applications.

Each application under this part that is received by the Commission, through the application process outlined in part 1, subpart F, must be accompanied by the applicable information listed below:

(a) Evidence of frequency coordination as required by § 90.175.

(b) Description of any equipment proposed to be used if it is not approved for use under this part.

(c) [Reserved]

(d) Applicants proposing to share their authorized transmitters pursuant to § 90.179 shall so indicate in their application.

(e)–(f) [Reserved]

(g) The environmental assessment required by §§ 1.1307 and 1.1311 of this chapter, if applicable. If an application filed under this part proposes the use of one or more new or existing antenna

structures that require registration under part 17 of this chapter, any required environmental assessment should be submitted pursuant to the process set forth in § 17.4(c) of this chapter rather than with the application filed under this part.

(h) Requests for authorization to communicate with foreign stations in accordance with § 90.20(b) or § 90.417;

(i) Showings required in connection with the use of frequencies as specified in subpart S of this chapter.

(j) Any other statements or other data specifically required under special circumstances which are set forth in the applicable subpart of this part, by the particular form on which the application is filed or upon request by the Commission.

(k) If the applicant proposes to use a multiple-licensed transmitter, he must provide the name of the owner and the names and call signs of any other licensees of that transmitter.

(l) Applicants for new land stations to be interconnected with the public switched telephone network must indicate on their applications that their stations will be interconnected.

(m) Applicants requesting licenses to operate on frequencies pursuant to § 90.20(d)(6) must submit disaster communications plans containing the following information:

(1) A system network/system use diagram including a showing of emergency power and methods of deployment to all parts of the State or insular area;

(2) A designation of the responsible governmental authority within the State or insular area who will be the controlling agency for the licensee;

(3) A schedule of proposed drills and/or exercises by the participants;

(4) The number of frequencies in each band, and the type of emission required by the applicant;

(5) The distances expected to be covered within that State or insular area;

(6) The adjacent states and insular areas expected to be communicated with during a regional disaster or emergency;

(7) The point of contact for emergencies involving more than one State or insular area;

(8) The common frequency band(s) and number of frequencies in each band required for interstate communication, and the point(s) of contact for these adjacent States or insular areas;

(9) The format and emission parameters of radio teletype transmissions to be used for interstate communications.

(n) All applications for renewal of base/mobile station licenses by licensees who also operate wildlife tracking telemetry transmitters, as described in § 90.20(f)(7), must include a statement detailing the number of units in service, by frequency, on Public Safety Pool frequencies at the time the renewal application is filed.

(o) Applicants requesting licenses to operate on frequencies pursuant to § 90.35(c)(1) must submit communications plans containing the following information:

(1) A description of the communication requirement sufficient to demonstrate that no alternative to the link is appropriate and that there is no reasonable way to abbreviate the link;

(2) The frequency bands and the number of frequencies necessary for the link(s);

(3) The name and phone number of the person(s) responsible for ceasing operations of the licensee's stations in the event of interference; and,

(4) Where the link(s) provides a standby backup circuit for another communications circuit, a brief description of the supported circuit and its vulnerability to disruption.

(Secs. 4, 303, 307, 48 Stat., as amended, 1066, 1082, 1083; 47 U.S.C. 154, 303, 307)

[43 FR 54791, Nov. 22, 1978]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.129, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.135 Modification of license.

(a) In addition to those changes listed in § 1.929(k) of this chapter and in accordance with § 1.947 of this chapter the following modifications may be made to an existing authorization without prior Commission approval:

(1) Change in the number and location of station control points or of control stations operating below 470 or above 800 MHz meeting the requirements of § 90.119(b).

(2) Change in the number of mobile units operated by Radiolocation Service licensees.

(b) Unless specifically exempted in § 90.175, licensees must submit a Form 601 application for modification to the applicable frequency coordinator for any change listed in § 1.929(c)(4) of this chapter.

[65 FR 60875, Oct. 13, 2000]

§ 90.137 Applications for operation at temporary locations.

(a) An application for authority to operate a base or a fixed transmitter at temporary locations shall be filed in accordance with § 1.931 of this chapter and the following:

(1) When one or more individual transmitters are to be operated by a licensee as a base station or as a fixed station at unspecified or temporary locations for indeterminate periods, such transmitters may be considered to comprise a single station intended to be operated at temporary locations.

(2) The application must specify the general geographic area within which the operation will be confined. The area may be specified as a city, a county or counties, a state or states or other definable geographic area such as a specified radius around a particular city or known geographic site.

(3) Applications for operation at temporary locations exceeding 180 days must be accompanied by evidence of frequency coordination, except that applications for operation at temporary locations exceeding 180 days by applicants using 220–222 MHz spectrum for geophysical telemetry operations need not be accompanied by evidence of frequency coordination.

(b) When any unit or units of a base station or fixed station which are authorized for operation at temporary locations actually remain or are intended to remain at the same location for more than 1 year, an application for a separate authorization specifying the fixed location shall be made as soon as possible, but not later than 30 days after the expiration of the 1-year period.

(c) The provisions of this section do not apply to the 4940–4990 MHz band.

[43 FR 54791, Nov. 22, 1978, as amended at 45 FR 63862, Sept. 26, 1980; 51 FR 14997, Apr. 22, 1986; 58 FR 44956, Aug. 25, 1993; 62 FR 15992, Apr. 3, 1997; 63 FR 68963, Dec. 14, 1998; 68 FR 38639, June 30, 2003]

§ 90.138 Applications for itinerant frequencies.

An application for authority to conduct an itinerant operation in the Industrial/Business Pool must be restricted to use of itinerant frequencies or other frequencies not designated for permanent use and need not be accompanied by evidence of frequency coordination. Users should be aware that no interference protection is provided from other itinerant operations.

[72 FR 35194, June 27, 2007]

§ 90.149 License term.

(a) Except as provided in subpart R of this part, licenses for stations authorized under this part will be issued for a term not to exceed ten (10) years from the date of the original issuance or renewal.

(b) Non-exclusive geographic area licenses for DSRCS Roadside Units (RSUs) in the 5850–5925 MHz band will be issued for a term not to exceed ten years from the date of original issuance or renewal. The registration dates of individual RSUs (see § 90.375) will not change the overall renewal period of the single license.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 36376, Sept. 17, 1984; 56 FR 19602, Apr. 29, 1991; 56 FR 65858, Dec. 19, 1991; 59 FR 59958, Nov. 21, 1994; 62 FR 18924, Apr. 17, 1997; 63 FR 68964, Dec. 14, 1998; 65 FR 60875, Oct. 13, 2000; 69 FR 46442, Aug. 3, 2004; 70 FR 61061, Oct. 20, 2005; 78 FR 25175, Apr. 29, 2013]

§ 90.155 Time in which station must be placed in operation.

(a) All stations authorized under this part, except as provided in §§ 90.528, 90.529, 90.629, 90.631(f), 90.665, 90.685, and 90.1209, must be placed in operation within twelve (12) months from the date of grant or the authorization cancels automatically and must be returned to the Commission.

(b) A local government entity in the Public Safety Pool, applying for any frequency in this part, may also seek

extended implementation authorization pursuant to § 90.629.

(c) For purposes of this section, a base station is not considered to be placed in operation unless at least one associated mobile station is also placed in operation. See also §§ 90.633(d) and 90.631(f).

(d) Multilateration LMS EA-licensees, authorized in accordance with § 90.353, must construct and place in operation a sufficient number of base stations that utilize multilateration technology (*see* paragraph (e) of this section) to provide multilateration location service to one-third of the EA's population within five years of initial license grant, and two-thirds of the population within ten years. Licensees may, in the alternative, provide substantial service to their licensed area within the appropriate five- and ten-year benchmarks. In demonstrating compliance with the construction and coverage requirements, the Commission will allow licensees to individually determine an appropriate field strength for reliable service, taking into account the technologies employed in their system design and other relevant technical factors. At the five- and ten-year benchmarks, licensees will be required to file a map and FCC Form 601 showing compliance with the coverage requirements (*see* § 1.946 of this chapter).

(e) A multilateration LMS station will be considered constructed and placed in operation if it is built in accordance with its authorized parameters and is regularly interacting with one or more other stations to provide location service, using multilateration technology, to one or more mobile units. Specifically, LMS multilateration stations will only be considered constructed and placed in operation if they are part of a system that can interrogate a mobile, receive the response at 3 or more sites, compute the location from the time of arrival of the responses and transmit the location either back to the mobile or to a subscriber's fixed site.

(f) For purposes of this section, a station licensed to provide commercial mobile radio service is not considered to have commenced service unless it provides service to at least one unaffiliated party.

(g) Application for extension of time to commence service may be made on FCC Form 601. Extensions of time must be filed prior to the expiration of the construction period. Extensions will be granted only if the licensee shows that the failure to commence service is due to causes beyond its control. No extensions will be granted for delays caused by lack of financing, lack of site availability, for the assignment or transfer of control of an authorization, or for failure to timely order equipment. If the licensee orders equipment within 90 days of the license grant, a presumption of due diligence is created.

(h) An application for modification of an authorization (under construction) at the existing location does not extend the initial construction period. If additional time to commence service is required, a request for such additional time must be submitted on FCC Form 601, either separately or in conjunction with the submission of the FCC Form 601 requesting modification.

(i) DSRCS Roadside Units (RSUs) in the 5850–5925 MHz band must be placed in operation within 12 months from the date of registration (*see* § 90.375) or the authority to operate the RSUs cancels automatically (*see* § 1.955 of this chapter). Such registration date(s) do not change the overall renewal period of the single license. Licensees must notify the Commission in accordance with § 1.946 of this chapter when registered units are placed in operation within their construction period.

[65 FR 60875, Oct. 13, 2000, as amended at 68 FR 38639, June 30, 2003; 69 FR 46443, Aug. 3, 2004; 69 FR 75172, Dec. 15, 2004; 71 FR 52749, Sept. 7, 2006; 72 FR 48859, Aug. 24, 2007]

§ 90.157 Discontinuance of station operation.

(a) An authorization shall cancel automatically upon permanent discontinuance of operations. Unless stated otherwise in this part or in a station authorization, for the purposes of this section, any station which has not operated for one year or more is considered to have been permanently discontinued.

(b) For DSRCS Roadside Units (RSUs) in the 5850–5925 MHz band, it is

the DSRCS licensee's responsibility to delete from the registration database any RSUs that have been discontinued.

[72 FR 44423, Aug. 8, 2007]

§ 90.159 Temporary and conditional permits.

(a) An applicant for a license under this part (other than a commercial mobile radio license) utilizing an already licensed facility may operate the radio station(s) for a period of up to one hundred eighty (180) days after submitting a Form 601 application for a station license in accordance with § 90.127 of this part, provided that all the antennas employed by control stations are 6.1 meters (20 feet) or less above ground or 6.1 meters (20 feet) or less above a man-made structure other than an antenna tower to which it is affixed. When required by § 90.175 of this part, applications must be accompanied by evidence of frequency coordination. The temporary operation of stations, other than mobile stations within the Canadian coordination zone is limited to stations with a maximum of 5 watts effective radiated power and a maximum antenna height of 6.1 meters (20 ft) above average terrain.

(b) An applicant proposing to operate a new land mobile radio station or modify an existing station below 470 MHz or in the one-way paging 929–930 MHz band (other than a commercial mobile radio service applicant or licensee on these bands) that is required to submit a frequency recommendation pursuant to paragraphs (b) through (h) of § 90.175 of this part may operate the proposed station during the pendency of its application for a period of up to one hundred eighty (180) days upon the filing of a properly completed formal Form 601 application that complies with § 90.127 of this part if the application is accompanied by evidence of frequency coordination in accordance with § 90.175 of this part and provided that the following conditions are satisfied:

(1) For applicants proposing to operate below 470 MHz, that the proposed station location is south of Line A or west of Line C as defined in § 90.7; for applicants in the one-way paging 929–930 MHz band, that the proposed station location is west of Line C as defined in § 90.7.

(2) The proposed antenna structure has been previously studied by the Federal Aviation Administration and determined to pose no hazard to aviation safety as required by § 17.4 of the Commission's Rules; or the proposed antenna or tower structure does not exceed 6.1 meters (20 feet) above ground level or above an existing man-made structure (other than an antenna structure), if the antenna or tower has not been previously studied by the Federal Aviation Administration and cleared by the FCC.

(3) The grant of the application does not require a waiver of the Commission's Rules.

(4) The applicant has determined that the proposed facility will not significantly affect the environment as defined in § 1.1307.

(5) The applicant has determined that the proposed station affords the level of protection to radio quiet zones and radio receiving facilities as specified in § 1.924 of this chapter.

(6) The applicant has submitted an application to the Commission stating the frequency the applicant intends to use and that the frequency coordination requirements specified in § 90.175 for selection and use of this frequency have been met and a minimum of ten business days has passed between submission of the application to the Commission and the onset of operation.

(c) An applicant proposing to operate an itinerant station or an applicant seeking the assignment of authorization or transfer of control of a license for an existing station below 470 MHz or in the 929–930 MHz band (other than a commercial mobile radio service applicant or licensee on these bands) may operate the proposed station during the pendency of the application for a period not to exceed one hundred eighty (180) days upon the filing of a properly completed formal Form 601 application that complies with § 90.127 of this part. Conditional authority ceases immediately if the application is dismissed by the Commission. All other categories of applications listed in

§ 90.175(i) of this part that do not require evidence of frequency coordination are excluded from the provisions of this section.

(d) Conditional authorization does not prejudice any action the Commission may take on the subject application. Conditional authority is accepted with the express understanding that such authority may be modified or canceled by the Commission at any time without hearing if, in the Commission's discretion, the need for such action arises. Consistent with § 90.175(g) of this part, the applicant assumes all risks associated with operation under conditional authority, the termination or modification of conditional authority, or the subsequent dismissal or denial of its application. Authority reverts back to the original licensee if an assignee or transferee's conditional authority is canceled.

(e) The transmissions of new stations operating pursuant to conditional authority shall be identified by a temporary call sign consisting of the prefix ''WT'' followed by the applicant's local seven digit business telephone number as provided in § 2.302. Transmissions by applicants for the modification, assignment of authorization or transfer of control of an existing station shall be identified by the station's call sign.

[51 FR 14997, Apr. 22, 1986, as amended at 54 FR 50239, Dec. 5, 1989; 58 FR 44956, Aug. 25, 1993; 58 FR 62291, Nov. 26, 1993; 59 FR 59959, Nov. 21, 1994; 62 FR 18924, Apr. 17, 1997; 63 FR 68964, Dec. 14, 1998; 69 FR 17959, Apr. 6, 2004]

SPECIAL RULES GOVERNING FACILITIES USED TO PROVIDE COMMERCIAL MOBILE RADIO SERVICES

SOURCE: 59 FR 59959, Nov. 21, 1994; 63 FR 68964, Dec. 14, 1998, unless otherwise noted.

NOTE: The following rules (§§ 90.165 through 90.169) govern applications, licensing, and operation of radio facilities in the 220–222 MHz (subpart T), Business Radio (subpart D), 929–930 MHz Paging (subpart P), and Specialized Mobile Radio (subpart S) services that are used to provide commercial mobile radio services (see §§ 20.3 and 20.9 of this chapter). Compliance with the rules relating to applications and licensing of facilities on paging-only channels in the Business Radio Service (see § 90.75(c)(10)) and 929–930 MHz paging channels (see § 90.494(a),(b)) is not required prior to August 10, 1996. Compliance with § 90.168 is also not required prior to August 10, 1996 for reclassified commercial mobile radio service providers who are to be regulated as private carriers until August 10, 1996 as provided in the Second Report and Order in GN Docket No. 93–252, 9 FCC Rcd 2348 (1994), paras. 280–284. The licensing and operation of radio facilities in the 220–222 MHz (subpart T), Business Radio (subpart D), 929–930 MHz Paging (subpart P), and Specialized Mobile Radio (subpart S) services that are used to provide commercial mobile radio services are also subject to rules elsewhere in this part that apply generally to Private Land Mobile Radio Services. In the case of any conflict between rules set forth in §§ 90.165 through 90.169 and other rules in this part, §§ 90.165 through 90.169 apply. 14–23. New §§ 90.165 through 90.169 are added to subpart G to read as follows:

§ 90.165 Procedures for mutually exclusive applications.

Mutually exclusive commercial mobile radio service applications are processed in accordance with part 1 of this chapter and with the rules in this section, except for mutually exclusive applications for licenses in the 220–222 MHz service and the 929–930 MHz Paging service, which are processed in accordance with the rules in subpart P and subpart T of this part.

Two or more pending applications are mutually exclusive if the grant of one application would effectively preclude the grant of one or more of the others under Commission rules governing the services involved.

(a) *Separate applications.* Any applicant that files an application knowing that it will be mutually exclusive with one or more applications should not include in the mutually exclusive application a request for other channels or facilities that would not, by themselves, render the application mutually exclusive with those other applications. Instead, the request for such other channels or facilities should be filed in a separate application.

(b) *Filing groups.* Pending mutually exclusive applications are processed in filing groups. Mutually exclusive applications in a filing group are given concurrent consideration. The Commission may dismiss as defective (pursuant to § 1.934 of this chapter) any mutually exclusive application(s) whose filing date is outside of the date range for inclusion in the filing group. The types of

filing groups used in day-to-day application processing are specified in paragraph (c)(3) of this section. A filing group is one of the following types:

(1) *Renewal filing group.* A renewal filing group comprises a timely-filed application for renewal of an authorization and all timely-filed mutually exclusive competing applications (see section 1.949 of this chapter).

(2) *Same-day filing group.* A same-day filing group comprises all mutually exclusive applications whose filing date is the same day, which is normally the filing date of the first-filed applications(s).

(3) *Thirty-day notice and cut-off filing group.* A 30-day notice and cut-off filing group comprises mutually exclusive applications whose filing date is no later than thirty (30) days after the date of the Public Notice listing the first-filed application(s) (according to the filing dates) as acceptable for filing.

(4) *Window filing group.* A window filing group comprises mutually exclusive applications whose filing date is within an announced filing window. An announced filing window is a period of time between and including two specific dates, which are the first and last dates on which applications (or amendments) for a particular purpose may be accepted for filing. In the case of a one-day filing window, the two dates are the same. The dates are made known to the public in advance.

(c) *Procedures.* Generally, the Commission may grant one application in a filing group of mutually exclusive applications and dismiss the other application(s) in the filing group that are excluded by the grant, pursuant to § 1.935 of this chapter.

(1) *Selection methods.* In selecting the application to grant, the Commission may use competitive bidding, random selection, or comparative hearings, depending on the type of applications involved.

(2) *Dismissal of applications.* The Commission may dismiss any application in a filing group that is defective or otherwise subject to dismissal under § 1.934 of this chapter, either before or after employing selection procedures.

(3) *Type of filing group used.* Except as otherwise provided in this part, the type of filing group used in processing of two or more mutually exclusive applications depends on the purpose(s) of the applications.

(i) If one of the mutually exclusive applications is a timely-filed application for renewal of an authorization, a renewal filing group is used.

(ii) If any mutually exclusive application filed on the earliest filing date is an application for modification and none of the mutually exclusive applications is a timely-filed application for renewal, a same-day filing group is used.

(iii) If all of the mutually exclusive applications filed on the earliest filing date are applications for initial authorization, a 30-day notice and cut-off filing group is used.

(4) *Disposition.* If there is only one application in any type of filing group, the Commission may grant that application and dismiss without prejudice any mutually exclusive applications not in the filing group. If there is more than one mutually exclusive application in a filing group, the Commission disposes of these applications as follows:

(i) Applications in a renewal filing group. All mutually exclusive applications in a renewal filing group are designated for comparative consideration in a hearing.

(ii) Applications in a 30-day notice and cut-off filing group.

(A) If all of the mutually exclusive applications in a 30-day notice and cut-off filing group are applications for initial authorization, the Commission administers competitive bidding procedures in accordance with subpart Q of part 1 of this chapter. After such procedures, the application of the successful bidder may be granted and the other applications may be dismissed without prejudice.

(B) If any of the mutually exclusive applications in a 30-day notice and cut-off filing group is an application for modification or an application for facilities, the Commission may attempt to resolve the mutual exclusivity by facilitating a settlement between the applicants. If a settlement is not reached within a reasonable time, the Commission may designate all applications in

the filing group for comparative consideration in a hearing. In this event, the result of the hearing disposes all of the applications in the filing group.

(iii) Applications in a same-day filing group. If there are two or more mutually exclusive applications in a same-day filing group, the Commission may attempt to resolve the mutual exclusivity by facilitating a settlement between the applicants. If a settlement is not reached within a reasonable time, the Commission may designate all applications in the filing group for comparative consideration in a hearing. In this event, the result of the hearing disposes all of the applications in the filing group.

(iv) Applications in a window filing group. Applications in a window filing group are processed in accordance with the procedures for a 30-day notice and cut-off filing group in paragraph (c)(4)(ii) of this section.

(d) *Terminology*. For the purposes of this section, terms have the following meanings:

(1) The ''filing date'' of an application is the date on which that application was received in a condition acceptable for filing or the date on which the most recently filed major amendment to that application was received, whichever is later, excluding major amendments in the following circumstances:

(i) The major amendment reflects only a change in ownership or control found by the Commission to be in the public interest;

(ii) The major amendment as received is defective or otherwise found unacceptable for filing; or

(iii) The application being amended has been designated for hearing and the Commission or the presiding officer accepts the major amendment.

(2) An ''application for initial authorization'' is:

(i) Any application requesting an authorization for a new system or station;

(ii) Any application requesting authorization for an existing station to operate on an additional channel, unless the additional channel is for paired two-way radiotelephone operation, is in the same frequency range as the existing channel(s), and will be operationally integrated with the existing channel(s) such as by trunking; or

(iii) any application requesting authorization for a new transmitter at a location more than 2 kilometers (1.2 miles) from any existing transmitters of the applicant licensee on the requested channel or channel block.

[59 FR 59959, Nov. 21, 1994, as amended at 63 FR 68964, 68965, Dec. 14, 1998]

§ 90.168 Equal employment opportunities.

Commercial Mobile Radio Services licensees shall afford equal opportunity in employment to all qualified persons, and personnel must not be discriminated against in employment because of sex, race, color, religion, or national origin.

(a) *Equal employment opportunity program*. Each licensee shall establish, maintain, and carry out a positive continuing program of specific practices designed to assure equal opportunity in every aspect of employment policy and practice.

(1) Under the terms of its program, each licensee shall:

(i) Define the responsibility of each level of management to insure a positive application and vigorous enforcement of the policy of equal opportunity, and establish a procedure to review and control managerial and supervisory performance.

(ii) Inform its employees and recognized employee organizations of the positive equal employment opportunity policy and program and enlist their cooperation.

(iii) Communicate its equal employment opportunity policy and program and its employment needs to sources of qualified applicants without regard to sex, race, color, religion or national origin, and solicit their recruitment assistance on a continuing basis.

(iv) Conduct a continuing campaign to exclude every form of prejudice or discrimination based upon sex, race, color, religion, or national origin, from the licensee's personnel policies and practices and working conditions.

(v) Conduct a continuing review of job structure and employment practices and adopt positive recruitment, training, job design and other measures needed in order to insure genuine

equality of opportunity to participate fully in all organizational units, occupations and levels of responsibility.

(2) The program must reasonably address specific concerns through policies and actions as set forth in this paragraph, to the extent that they are appropriate in consideration of licensee size, location and other factors.

(i) To assure nondiscrimination in recruiting.

(A) Posting notices in the licensee's offices informing applicants for employment of their equal employment rights and their right to notify the Equal Employment Opportunity Commission (EEOC), the Federal Communications Commission (Commission), or other appropriate agency. Where a substantial number of applicants are Spanish-surnamed Americans, such notice should be posted in both Spanish and English.

(B) Placing a notice in bold type on the employment application informing prospective employees that discrimination because of sex, race, color, religion, or national origin is prohibited, and that they may notify the EEOC, the Commission, or other appropriate agency if they believe they have been discriminated against.

(C) Placing employment advertisements in media which have significant circulation among minority groups in the recruiting area.

(D) Recruiting through schools and colleges with significant minority group enrollments.

(E) Maintaining systematic contacts with minority and human relations organizations, leaders and spokespersons to encourage referral of qualified minority or female applicants.

(F) Encouraging present employees to refer minority or female applicants.

(G) Making known to the appropriate recruitment sources in the employer's immediate area that qualified minority members are being sought for consideration whenever the licensee hires.

(ii) To assure nondiscrimination in selection and hiring.

(A) Instructing employees of the licensee who make hiring decisions that all applicants for all jobs are to be considered without discrimination.

(B) Where union agreements exist, cooperating with the union or unions in the development of programs to assure qualified minority persons or females of equal opportunity for employment, and including an effective nondiscrimination clause in new or renegotiated union agreements.

(C) Avoiding use of selection techniques or tests that have the effect of discriminating against minority groups or females.

(iii) To assure nondiscriminatory placement and promotion.

(A) Instructing employees of the licensee who make decisions on placement and promotion that minority employees and females are to be considered without discrimination, and that job areas in which there is little or no minority or female representation should be reviewed to determine whether this results from discrimination.

(B) Giving minority groups and female employees equal opportunity for positions which lead to higher positions. Inquiring as to the interest and skills of all lower-paid employees with respect to any of the higher-paid positions, followed by assistance, counseling, and effective measures to enable employees with interest and potential to qualify themselves for such positions.

(C) Reviewing seniority practices to insure that such practices are nondiscriminatory and do not have a discriminatory effect.

(D) Avoiding use of selection techniques or tests that have the effect of discriminating against minority groups or females.

(iv) to assure nondiscrimination in other areas of employment practices.

(A) Examining rates of pay and fringe benefits for present employees with equivalent duties and adjusting any inequities found.

(B) Providing opportunity to perform overtime work on a basis that does not discriminate against qualified minority groups or female employees.

(b) *EEO statement*. Each licensee having sixteen (16) or more full-time employees shall file with the Commission, no later than May 31st following the grant of that licensee's first Commercial Mobile Radio Services authorization, a statement describing fully its current equal employment opportunity

program, indicating specific practices to be followed in order to assure equal employment opportunity on the basis of sex, race, color, religion, or national origin in such aspects of employment practices as regards recruitment, selection, training, placement, promotion, pay, working conditions, demotion, layoff, and termination. Any licensee having sixteen (16) or more full-time employees that changes its existing equal employment opportunity program shall file with the Commission, no later than May 31st thereafter, a revised statement reflecting the change(s).

NOTE: Commercial mobile radio service licensees having sixteen (16) or more full-time employees that do not have a current EEO statement on file with the Commission as of January 2, 1995, must file the statement required by this paragraph no later than May 31, 1995.

(c) *Report of complaints filed against licensees.* Each licensee, regardless of how many employees it has, shall submit an annual report to the Commission no later than May 31st of each year indicating whether any complaints regarding violations by the licensee or equal employment provisions of Federal, State, Territorial, or local law have been filed before anybody having competent jurisdiction.

(1) The report should state the parties involved, the date filing, the courts or agencies before which the matters have been heard, the appropriate file number (if any), and the respective disposition or current status of any such complaints.

(2) Any licensee who has filed such information with the EEOC may file a notification of such filing with the Commission in lieu of a report.

(d) *Complaints of violations of Equal Employment Programs.* Complaints alleging employment discrimination against a common carrier licensee are considered by the Commission in the following manner:

(1) If a complaint raising an issue of discrimination is received against a licensee who is within the jurisdiction of the EEOC, it is submitted to that agency. The Commission maintains a liaison with that agency that keeps the Commission informed of the disposition of complaints filed against common carrier licensees.

(2) Complaints alleging employment discrimination against a common carrier licensee who does not fall under the jurisdiction of the EEOC but is covered by appropriate enforceable State law, to which penalties apply, may be submitted by the Commission to the respective State agency.

(3) Complaints alleging employment discrimination against a common carrier licensee who does not fall under the jurisdiction of the EEOC or an appropriate State law, are accorded appropriate treatment by the Commission.

(4) The Commission will consult with the EEOC on all matters relating to the evaluation and determination of compliance by the common carrier licensees with the principles of equal employment as set forth herein.

(5) Complaints indicating a general pattern of disregard of equal employment practices which are received against a licensee that is required to file an employment report to the Commission under § 1.815(a) of this chapter are investigated by the Commission.

(e) *Commission records.* A copy of every annual employment report, equal employment opportunity program statement, reports on complaints regarding violation of equal employment provisions of Federal, State, Territorial, or local law, and copies of all exhibits, letters, and other documents filed as part thereof, all amendments thereto, all correspondence between the licensee and the Commission pertaining to the reports after they have been filed and all documents incorporated therein by reference, are open for public inspection at the offices of the Commission.

(f) *Licensee records.* Each licensee required to file annual employment reports (pursuant to § 1.815(a) of this chapter), equal employment opportunity program statements, and annual reports on complaints regarding violations of equal employment provisions of Federal, State, Territorial, or local law shall maintain for public inspection a file containing a copy of each such report and copies of all exhibits, letters, and other documents filed as

part thereto, all correspondence between the licensee and the Commission pertaining to the reports after they have been filed and all documents incorporated therein by reference. The documents must be retained for a period of two (2) years.

§ 90.169 Construction prior to grant of application.

Applicants may construct facilities prior to grant of their applications, subject to the provisions of this section, but must not operate such facilities until the Commission grants an authorization. If the conditions stated in this section are not met, applicants must not begin to construct facilities.

(a) *When applicants may begin construction.* An applicant may begin construction of a facility thirty-five (35) days after the date of the Public Notice listing the application for that facility as acceptable for filing.

(b) *Notification to stop.* If the Commission for any reason determines that construction should not be started or should be stopped while an application is pending, and so notifies the applicant, orally (followed by written confirmation) or in writing, the applicant must not begin construction or, if construction has begun, must stop construction immediately.

(c) *Assumption of risk.* Applicants that begin construction pursuant to this section before receiving an authorization do so at their own risk and have no recourse against the United States for any losses resulting from:

(1) Applications that are not granted;

(2) Errors or delays in issuing Public Notices;

(3) Having to alter, relocate, or dismantle the facility; or

(4) Incurring whatever costs may be necessary to bring the facility into compliance with applicable laws, or Commission rules and orders.

(d) *Conditions.* Except as indicated, all pre-grant construction is subject to the following conditions:

(1) The application is not mutually exclusive with any other application;

(2) No petitions to deny the application have been filed;

(3) The application does not include a request for a waiver of one or more Commission rules;

(4) For any construction or alteration that would exceed the requirements of § 17.7 of this chapter, the licensee has notified the appropriate Regional Office of the Federal Aviation Administration (FAA Form 7460–1), filed a request for antenna height clearance and obstruction marking and lighting specifications (FCC Form 854) with the Commission;

(5) The applicant has indicated in the application that the proposed facility would not have a significant environmental effect, in accordance with §§ 1.1301 through 1.1319 of this chapter; and,

(6) Under applicable international agreements and rules in this part, individual coordination of the proposed channel assignment(s) with a foreign administration is not required.

Subpart H—Policies Governing the Assignment of Frequencies

§ 90.171 Scope.

This subpart contains detailed information concerning the policies under which the Commission assigns frequencies for the use of licensees under this part, frequency coordination procedures, and procedures under which licensees may cooperatively share radio facilities.

§ 90.173 Policies governing the assignment of frequencies.

(a) Except as indicated in paragraph (j) of this section, the frequencies which ordinarily may be assigned to stations in the services governed by this part are listed in subparts B, C and F of this part. Except as otherwise specifically provided in this part, frequencies assigned to land mobile stations are available on a shared basis only and will not be assigned for the exclusive use of any licensee.

(b) All applicants and licensees shall cooperate in the selection and use of frequencies in order to reduce interference and make the most effective use of the authorized facilities. Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions

including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further the use of any frequency at a given geographical location may be denied when, in the judgment of the Commission, its use in that location is not in the public interest; the use of any frequency may be restricted as to specified geographical areas, maximum power, or such other operating conditions, contained in this part or in the station authorization.

(c) Frequencies allocated for Federal Government radio stations under Executive order of the President may be authorized for the use of stations in these services upon appropriate showing by the applicant that such assignment is necessary for inter-communication with government stations or required for coordination with activities of the Federal Government, and where the Commission finds, after consultation with the appropriate government agency or agencies, that such assignment is necessary.

(d) The radio facilities authorized under this part are intended for use in connection with and as an adjunct to the primary governmental or business activities of the licensee.

(e) Persons requesting authority to operate in the band 25–50 MHz should recognize that this band is shared with various services in other countries and that harmful interference may be caused by the propagation of signals in this band from distant stations. No protection from such harmful interference generally can be expected.

(f) Applications for stations in the 150–174 MHz and 421–512 MHz bands for operation on frequencies 15 kHz or less removed from existing stations in the same geographic area will be granted based upon a recommendation from the applicable frequency coordinator as specified in §§ 90.20(c)(2) and 90.35(b)(2).

(g) In the states of Alaska and Hawaii, and in areas outside the continental limits of the United States and the adjacent waters, the frequencies above 150.8 MHz which are listed elsewhere in this part as available for assignment to base stations or mobile stations in the Industrial/Business Pool are also available for assignment to operational fixed stations in the Industrial/Business Pool on a secondary basis.

(h) In the Public Safety Pool, base stations may be authorized to operate on a secondary basis on frequencies below 450 MHz which are available to mobile stations.

(i) In the 450–470 MHz band, the frequencies are ordinarily assigned in pairs, with the mobile station transmit frequency 5 MHz above the paired base station transmit frequency. In the 470–512 MHz band, the frequencies are ordinarily assigned in pairs with the mobile station transmit frequency 3 MHz above the paired base station transmit frequency. In the Industrial/Business Pool, in the 150 MHz band, the frequencies subject to § 90.35(c)(6) may be assigned in pairs with the separation between base and mobile frequencies being 5.26 MHz. A mobile station may be assigned the frequency which would normally be assigned to a base station for single-frequency operation. However, this single-frequency operation may be subject to interference that would not occur to a two-frequency system.

(j) Frequencies other than those listed in subparts B and C of this part may be assigned in the 150–174 MHz, 421–430 MHz, 450–470 MHz, and 470–512 MHz bands, provided the following conditions are met:

(1) Such applications must be accompanied by a showing of frequency coordination in accordance with the requirements of § 90.175;

(2) The frequencies must not be available in any other rule part of this chapter; and

(3) The authorized bandwidth of any system operating in accordance with this paragraph must not overlap spectrum available in other rule parts of this chapter unless that spectrum is also allocated in part 90.

(k) This paragraph is only applicable to entities with Finder's Preference requests pending before the Commission as of July 29, 1998. Notwithstanding any other provisions of this part, any eligible person shall be given a dispositive preference for a channel assignment on an exclusive basis in the 220–222 MHz, 470–512 MHz, and 800/900 MHz (except on frequencies designated exclusively for SMR service) bands by

submitting information that leads to the recovery of channels in these bands. Recovery of such channels must result from information provided regarding the failure of existing licensees to comply with the provisions of § 90.155, § 90.157, § 90.629, § 90.631 (e) or (f), or § 90.633 (c) or (d).

(l) In the 150–174 MHz band, except where otherwise specifically provided, authorizations for frequencies that were available prior to August 18, 1995 will be granted with channel bandwidths of 25 kHz or less. Authorizations for all other frequencies in this band will be granted with channel bandwidths of 12.5 kHz or less (*i.e.*, in the Public Safety Pool, frequencies subject to §§ 90.20 (d)(27) and (d)(44), and in the Industrial/Business Pool, frequencies subject to §§ 90.35 (c)(30) and (c)(33)).

(m) In the 421–512 MHz band, except where otherwise specifically provided, authorizations for frequencies that were available prior to August 18, 1995 will be granted with channel bandwidths of 25 kHz or less. New authorizations for frequencies 12.5 kHz removed from these frequencies will be made for channel bandwidths of 12.5 kHz or less (*i.e.*, in the Public Safety Pool, frequencies subject to § 90.20(d)(27) and in the Industrial/Business Pool, frequencies subject to § 90.35(c)(30)). Authorizations for frequencies 6.25 kHz removed from these frequencies will be granted with channel bandwidths of 6.25 kHz or less (*i.e.*, in the Public Safety Pool, frequencies subject to § 90.20(d)(44), and in the Industrial/Business Pool, frequencies subject to § 90.35(c)(33)).

(n) Any recovered channels in the 800 MHz SMR service will revert automatically to the holder of the EA license within which such channels are included. If there is no EA licensee for recovered channels, such channels will be retained by the Commission for future licensing.

(Secs. 4, 303, 307, 48 Stat., as amended, 1066, 1082, 1083; 47 U.S.C. 154, 303, 307)

[43 FR 54791, Nov. 22, 1978]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.173, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.175 Frequency coordinator requirements.

Except for applications listed in paragraph (j) of this section, each application for a new frequency assignment, for a change in existing facilities as listed in § 90.135(a), or for operation at temporary locations in accordance with § 90.137 must include a showing of frequency coordination as set forth further.

(a) Frequency coordinators may request, and applicants are required to provide, all appropriate technical information, system requirements, and justification for requested station parameters when such information is necessary to identify and recommend the most appropriate frequency. Additionally, applicants bear the burden of proceeding and the burden of proof in requesting the Commission to overturn a coordinator's recommendation.

(b) *For frequencies between 25 and 470 MHz:* (1) A statement is required from the applicable frequency coordinator as specified in §§ 90.20(c)(2) and 90.35(b) recommending the most appropriate frequency. In addition, for frequencies above 150 MHz, if the interference contour of a proposed station would overlap the service contour of a station on a frequency formerly shared prior to radio service consolidation by licensees in the Manufacturers Radio Service, the Forest Products Radio Service, the Power Radio Service, the Petroleum Radio Service, the Motor Carrier Radio Service, the Railroad Radio Service, the Telephone Maintenance Radio Service or the Automobile Emergency Radio Service, the written concurrence of the coordinator for the industry-specific service, or the written concurrence of the licensee itself, must be obtained. Requests for concurrence must be responded to within 20 days of receipt of the request. The written request for concurrence shall advise the receiving party of the maximum 20 day response period. The coordinator's recommendation may include comments on technical factors such as power, antenna height and gain, terrain and other factors which may serve to minimize potential interference. In addition:

(2) On frequencies designated for coordination or concurrence by a specific

frequency coordinator as specified in §§ 90.20(c)(3) and 90.35(b), the applicable frequency coordinator shall provide a written supporting statement in instances in which coordination or concurrence is denied. The supporting statement shall contain sufficient detail to permit discernment of the technical basis for the denial of concurrence. Concurrence may be denied only when a grant of the underlying application would have a demonstrable, material, adverse effect on safety.

(3) In instances in which a frequency coordinator determines that an applicant's requested frequency or the most appropriate frequency is one designated for coordination or concurrence by a specific frequency coordinator as specified in § 90.20(c)(3) or § 90.35(b), that frequency coordinator may forward the application directly to the appropriate frequency coordinator. A frequency coordinator may only forward an application as specified above if consent is received from the applicant.

(c) *For frequencies above 800 MHz:* When frequencies are shared by more than one service, concurrence must be obtained from the other applicable certified coordinators.

(d) *For frequencies in the 450–470 MHz band:* When used for secondary fixed operations, frequencies shall be assigned and coordinated pursuant to § 90.261.

(e) *For frequencies between 470–512 MHz, 769–775/799–805 MHz, 806–824/851–869 MHz and 896–901/935–940 MHz:* A recommendation of the specific frequencies that are available for assignment in accordance with the loading standards and mileage separations applicable to the specific radio service, frequency pool, or category of user involved is required from an applicable frequency coordinator.

(f) *For frequencies in the 929–930 MHz band listed in paragraph (b) of § 90.494:* A statement is required from the coordinator recommending the most appropriate frequency.

(g) *For frequencies between 1427–1432 MHz:* A statement is required from the coordinator recommending the most appropriate frequency, operating power and area of operation in accordance with the requirements of § 90.259(b).

(h) Any recommendation submitted in accordance with paragraphs (a), (c), (d), or (e) of this section is advisory in character and is not an assurance that the Commission will grant a license for operation on that frequency. Therefore, applicants are strongly advised not to purchase radio equipment operating on specific frequencies until a valid authorization has been obtained from the Commission.

(i) Applications for facilities near the Canadian border north of line A or east of line C in Alaska may require coordination with the Canadian government. *See* § 1.928 of this chapter.

(j) The following applications need not be accompanied by evidence of frequency coordination:

(1) Applications for frequencies below 25 MHz.

(2) Applications for a Federal Government frequency.

(3) Applications for frequencies in the 72–76 MHz band except for mobile frequencies subject to § 90.35(c)(77).

(4) [Reserved]

(5) Applications in the Industrial/Business Pool requesting a frequency designated for itinerant operations.

(6) Applications in the Radiolocation Service.

(7) Applications filed exclusively to modify channels in accordance with band reconfiguration in the 806–824/851–869 band.

(8) Applications for SMR frequencies contained in §§ 90.617(d) Table 4A, 90.617(e), 90.617(f) and 90.619(b)(2).

(9) Applications indicating license assignments such as change in ownership, control or corporate structure if there is no change in technical parameters.

(10) Applications for mobile stations operating in the 470–512 MHz band, 799–805 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis in the proposed area of operation.

(11) Applications for add-on base stations in multiple licensed systems operating in the 470–512 MHz, 769–775 MHz band, or above 800 MHz if the frequency pair is assigned to a single system on an exclusive basis.

(12) Applications for control stations operating below 470 MHz, 769–775/799–805

MHz, or above 800 MHz and meeting the requirements of § 90.119(b).

(13) Except for applications for the frequencies set forth in § 90.719(c) and § 90.720, applications for frequencies in the 220–222 MHz band.

(14) Applications for a state license under § 90.529.

(15) Applications for narrowband low power channels listed for itinerant use in § 90.531(b)(4).

(16) Applications for DSRCS licenses (as well as registrations for Roadside Units) in the 5850–5925 GHz band.

(17) Applications for the deletion of a frequency and/or transmitter site location.

(18) Applications for base, mobile, or control stations in the 763–768 MHz and 793–798 MHz bands.

(19) Applications filed exclusively to return channels that had been authorized for commercial operation pursuant to § 90.621(e) or (f) to non-commercial operation (including removal of the authorization to interconnect with the public switched telephone network).

(20) Applications for a reduction in the currently authorized emission bandwidth or a deletion of an existing emission designator.

(21) Applications for a reduction in antenna height or authorized power.

(22) Applications for frequencies in the 4940–4990 MHz band. See § 90.1209 of this chapter for further information.

[67 FR 41858, June 20, 2002, as amended at 67 FR 63289, Oct. 11, 2002; 68 FR 38639, June 30, 2003; 69 FR 39867, July 1, 2004; 69 FR 46443, Aug. 3, 2004; 70 FR 61061, Oct. 20, 2005; 70 FR 76708, Dec. 28, 2005; 72 FR 48859, Aug. 24, 2007; 75 FR 19284, Apr. 14, 2010; 77 FR 45506, Aug. 1, 2012; 78 FR 25175, Apr. 29, 2013]

§ 90.176 Coordinator notification requirements on frequencies below 512 MHz, at 769–775/799–805 MHz, or at 1427–1432 MHz.

(a) Frequencies below 470 MHz. Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to all other frequency coordinators who are also certified to coordinate that frequency.

(1) The applicable frequency coordinator for each frequency is specified in the coordinator column of the frequency tables of §§ 90.20(c)(3) and 90.35(b)(3).

(2) For frequencies that do not specify any frequency coordinator, all certified in-pool coordinators must be notified.

(3) For frequencies that are shared between the Public Safety Pool and the Industrial/Business Pool (frequencies subject to §§ 90.20(d)(7), (d)(25), (d)(34), or (d)(46) in the Public Safety Pool, and subject to §§ 90.35(c)(13), (c)(25), or (d)(4) in the Industrial/Business Pool), all certified coordinators of both pools must be notified.

(b) Frequencies in the 470–512 MHz band. Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to all other certified frequency coordinators in the Public Safety Pool and the Industrial/Business Pool.

(c) *Frequencies in the 769–775/799–805 MHz band.* Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to all other certified frequency coordinators in the Public Safety Pool.

(d) Frequencies in the 1427–1432 MHz band. Within one business day of making a frequency recommendation, each frequency coordinator must notify and provide the information indicated in paragraph (g) of this section to the WMTS frequency coordinator designated in § 95.113 and to all other frequency coordinators who are also certified to coordinate that frequency.

(e) Each frequency coordinator must also notify all other certified in-pool coordinators on any day that the frequency coordinator does not make any frequency recommendations.

(f) Notification must be made to all coordinators at approximately the same time and can be made using any method that ensures compliance with the one business day requirement.

(g) At a minimum the following information must be included in each notification:

(1) Name of applicant;

(2) Frequency or frequencies recommended;

(3) Antenna locations and heights;

(4) Effective radiated power (ERP);

(5) Type(s) of emissions;

(6) Description of the service area; and

(7) Date and time of recommendation.

(h) Upon request, each coordinator must provide any additional information requested from another certified coordinator regarding a pending recommendation that it has processed but has not yet been granted by the Commission.

(i) It is the responsibility of each coordinator to insure that its frequency recommendations do not conflict with the frequency recommendations of any other frequency coordinator. Should a conflict arise, the affected coordinators are jointly responsible for taking action to resolve the conflict, up to and including notifying the Commission that an application may have to be returned.

[57 FR 41859, June 20, 2002, as amended at 72 FR 48859, Aug. 24, 2007]

§ 90.179 Shared use of radio stations.

Licensees of radio stations authorized under this rule part may share the use of their facilities. A station is shared when persons not licensed for the station control the station for their own purposes pursuant to the licensee's authorization. Shared use of a radio station may be either on a non-profit cost shared basis or on a for-profit private carrier basis. Shared use of an authorized station is subject to the following conditions and limitations:

(a) Persons may share a radio station only on frequencies for which they would be eligible for a separate authorization.

(b) The licensee of the shared radio station is responsible for assuring that the authorized facility is used only by persons and only for purposes consistent with the requirements of this rule part.

(c) Participants in the sharing arrangement may obtain a license for their own mobile units (including control points and/or control stations for control of the shared facility), or they may use mobile stations, and control stations or control points authorized to the licensee.

(d) If the licensee shares the land station on a non-profit, cost shared basis to the licensee, this shared use must be pursuant to a written agreement between the licensee and each participant which sets out (1) the method of operation, (2) the components of the system which are covered by the sharing arrangements, (3) the method by which costs are to be apportioned, and (4) acknowledgement that all shared transmitter use must be subject to the licensee's control. These agreements must be kept as part of the station records.

(e) If the land station which is being shared is interconnected with the public switched telephone network, the provisions of § 90.477 *et seq*. apply.

(f) Above 800 MHz, shared use on a for-profit private carrier basis is permitted only by SMR, Private Carrier Paging, LMS, and DSRCS licensees. See subparts M, P, and S of this part.

(g) Notwithstanding paragraph (a) of this section, licensees authorized to operate radio systems on Public Safety Pool frequencies designated in § 90.20 may share their facilities with Federal Government entities on a non-profit, cost-shared basis. Such a sharing arrangement is subject to the provisions of paragraphs (b), (d), and (e) of this section, and § 2.103(c) of this chapter concerning operations in the 758–769 MHz and 788–799 MHz bands. State governments authorized to operate radio systems under § 90.529 may share the use of their systems (for public safety services not made commercially available to the public) with any entity that would be eligible for licensing under § 90.523 and Federal government entities.

(h) Notwithstanding paragraph (a) of this section, licensees authorized to operate radio systems on Industrial/Business Pool frequencies designated in § 90.35 may share their facilities with Public Safety Pool entities designated in § 90.20 and with Federal Government entities on a non-profit, cost-shared basis. Such a sharing arrangement is subject to the provisions of paragraphs (b), (d), and (e) of this section.

(i) The provisions of this section do not apply to licensees authorized to provide commercial mobile radio service under this part, including licensees

authorized to use channels transferred or assigned pursuant to § 90.621(e)(2).

(j) On the Interoperability Channels in the 700 MHz Public Safety Band (*See* 90.531(b)(1)), hand-held and vehicular units operated by any licensee holding a license in the 700 MHz Public Safety Band or by any licensee for any public safety frequency pursuant to part 90 of the Commission's rules may communicate with or through land stations without further authorization and without a sharing agreement.

[48 FR 26620, June 9, 1983]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.179, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.185 Multiple licensing of radio transmitting equipment in the mobile radio service.

Two or more persons eligible for licensing under this rule part may be licensed for the same land station under the following terms and conditions.

(a) Each licensee complies with the general operating requirements set out in § 90.403 of the rules.

(b) Each licensee is eligible for the frequency(ies) on which the land station operates.

(c) If the multiple licensed base station is interconnected with the public switched telephone network, the provisions of § 90.477 *et seq*. apply.

[48 FR 26621, June 9, 1983]

§ 90.187 Trunking in the bands between 150 and 512 MHz.

(a) Applicants for centralized and decentralized trunked systems operating on frequencies between 150 and 512 MHz (except 220–222 MHz) must indicate on their applications (radio service and class of station code, instructions for FCC Form 601) that their system will be trunked. Licensees of stations that are not trunked may trunk their systems only after modifying their license (see § 1.927 of this chapter).

(b) Except as provided in paragraphs (c) and (d) of this section, trunked systems operating under this section must employ equipment that prevents transmission on a trunked frequency if a signal from another system is present on that frequency. The level of monitoring must be sufficient to avoid harmful interference to other systems.

(c) The monitoring requirement in paragraph (b) of this section does not apply to trunked systems operating in the 470–512 MHz band that meet the loading requirements of § 90.313 and have exclusive use of their frequencies in their service area.

(d) The monitoring requirement in paragraph (b) of this section does not apply if the application is accompanied by written consent from all affected licensees.

(1) Affected licensees for the purposes of this section are licensees (and previously filed pending applicants) meeting both a spectral and a contour overlap as defined:

(i) *Spectral overlap*. Licensees (and filers of previously filed pending applications) with an assigned (or proposed) frequency having a spectral separation from a frequency of the proposed centralized trunked station that does not exceed these values:

Proposed station	Incumbent authorized bandwidth		
	25 kHz	*12.5 kHz*	*6.25 kHz*
25 kHz	15.0 kHz	15.0 kHz	15.0 kHz
12.5 kHz	15.0 kHz	7.5 kHz	7.5 kHz
6.25 kHz	15.0 kHz	7.5 kHz	5.0 kHz

The left column is the authorized bandwidth requested for the proposed trunked station. The second row is the authorized bandwidth of the incumbent. The other cells in the table show the frequency range above and below the frequency of the proposed centralized trunked station that must be considered.

(ii) *Contour overlap*. (A) Licensees (and filers of previously filed pending applications) with a service contour (37 dBu for stations in the 150–174 MHz band, and 39 dBu for stations in the 421–512 MHz band) that is overlapped by the proposed centralized trunked station's interference contour (19 dBu for stations in the 150–174 MHz band, and 21 dBu for stations in the 421–512 MHz

band). Contour calculations are required for base station facilities and not for mobile stations associated with those base stations.

(B) The calculation of service and interference contours shall be performed using generally accepted engineering practices and standards, including appropriate derating factors, agreed to by a consensus of all certified frequency coordinators. Frequency coordinators shall make this information available to the Commission upon request.

(C) For purposes of this section, the authorized operating area of a station or proposed station with no associated base station shall be used as both the station's service contour and its interference contour.

(D) After January 1, 2013, licensees with an authorized bandwidth exceeding 12.5 kHz will not be deemed affected licensees, unless the licensee meets the efficiency standard set forth in § 90.203(j)(3) or the licensee was granted a waiver of § 90.209(b).

(2) The written consent from an affected licensee shall state all terms agreed to by the parties and shall be signed by the parties. The written consent shall be maintained by the operator of the centralized trunked station and be made available to the Commission upon request. An application for a centralized trunked station shall include either a certification from the applicant that written consent has been obtained from all affected licensees, or a certification from the frequency coordinator that there are no affected licensees.

(3) In addition, the service contour for proposed centralized trunked stations shall not be overlapped by an incumbent licensee's interference contour.

(e) The exclusive service area of a station that has been authorized for centralized trunked operation will be protected from proposed centralized trunked, decentralized trunked or conventional operations in accordance with the standards of paragraph (d) of this section.

(f) Trunking of systems licensed on paging-only channels or licensed in the Radiolocation Service (subpart F) is not permitted.

(g) *Channel limits.* (1) No more than 10 channels for new centralized trunked operation in the Industrial/Business Pool may be applied for at a single transmitter location or at locations with overlapping service contours as specified in paragraph (d) of this section. Subsequent applications for centralized trunked operation are limited to no more than an additional 10 channels, and must be accompanied by a certification, submitted to the certified frequency coordinator coordinating the application, that all of the applicant's existing channels authorized for centralized trunked operation at that location or at locations with overlapping service contours have been constructed and placed in operation. Certified frequency coordinators are authorized to require documentation in support of the applicant's certification that existing channels have been constructed and placed in operation.

(2) Applicants for Public Safety Pool channels may request more than 10 centralized trunked channels at a single location or at locations with overlapping service contours if accompanied by a showing of sufficient need. The requirement for such a showing may be satisfied by submission of loading studies demonstrating that requested channels in excess of 10 will be loaded with 50 mobiles per channel within a five year period commencing with the grant of the application.

(h) If a licensee authorized for centralized trunked operation discontinues trunked operation for a period of 30 consecutive days, the licensee, within 7 days thereafter, shall file a conforming application for modification of license with the Commission.

[78 FR 28754, May 16, 2013]

Subpart I—General Technical Standards

§ 90.201 Scope.

This subpart sets forth the general technical requirements for use of frequencies and equipment in the radio services governed by this part. Such requirements include standards for acceptability of equipment, frequency tolerance, modulation, emissions,

power, and bandwidths. Special additional technical standards applicable to certain frequency bands and certain specialized uses are set forth in subparts J, K, N, and R.

[67 FR 76700, Dec. 13, 2002]

§ 90.203 Certification required.

(a) Except as specified in paragraphs (b) and (l) of this section, each transmitter utilized for operation under this part and each transmitter marketed as set forth in § 2.803 of this chapter must be of a type which has been certificated for use under this part.

(1) Effective October 16, 2002, except in the 1427–1432 MHz band, an equipment approval may no longer be obtained for in-hospital medical telemetry equipment operating under the provisions of this part. The requirements for obtaining an approval for medical telemetry equipment after this date are found in subpart H of part 95 of this chapter.

(2) Any manufacturer of radio transmitting equipment (including signal boosters) to be used in these services may request certification for such equipment following the procedures set forth in subpart J of part 2 of this chapter. Certification for an individual transmitter or signal booster also may be requested by an applicant for a station authorization by following the procedure set forth in part 2 of this chapter. Such equipment if approved will be individually enumerated on the station authorization.

(b) Certification is not required for the following:

(1) [Reserved]

(2) Transmitters used for police zone and interzone stations authorized as of January 1, 1965.

(3) Transmitting equipment used in the band 1427–1435 MHz.

(4) Transmitters used in radiolocation stations in accordance with subpart F authorized prior to January 1, 1974, for public safety and land transportation applications (old parts 89 and 93).

(5) Transmitters used in radiolocation stations in accordance with subpart F authorized for industrial applications (old part 91) prior to January 1, 1978.

(6) [Reserved]

(7) Transmitters imported and marketed prior to September 1, 1996 for use by LMS systems.

(c) Radiolocation transmitters for use in public safety and land transportation applications marketed prior to January 1, 1974, must meet the applicable technical standards in this part, pursuant to § 2.803 of this chapter.

(d) Radiolocation transmitters for use in public safety and land transportation applications marketed after January 1, 1974, must comply with the requirements of paragraph (a) of this section.

(e) Except as provided in paragraph (g) of this section, transmitters designed to operate above 25 MHz shall not be certificated for use under this part if the operator can program and transmit on frequencies, other than those programmed by the manufacturer, service or maintenance personnel, using the equipment's external operation controls.

(f) Except as provided in paragraph (g) of this section, transmitters designed to operate above 25 MHz that have been approved prior to January 15, 1988, and that permit the operator, by using external controls, to program the transmitter's operating frequencies, shall not be manufactured in, or imported into the United States after March 15, 1988. Marketing of these transmitters shall not be permitted after March 15, 1989.

(g) Transmitters having frequency programming capability and that are designed to operate above 25 MHz are exempt from paragraphs (e) and (f) of this section if the design of such transmitters:

(1) Is such that transmitters with external controls normally available to the operator must be internally modified to place the equipment in the programmable mode. Further, while in the programmable mode, the equipment shall not be capable of transmitting. The procedures for making the modification and altering the frequency program shall not be made available with the operating information normally supplied to the end user of the equipment; or

(2) Requires the tramsitter to be programmed for frequencies through controls normally inaccessible to the operator; or

(3) Requires equipment to be programmed for frequencies through use of external devices or specifically programmed modules made available only to service/maintenance personnel; or

(4) Requires equipment to be programmed through cloning (copying a program directly from another transmitter) using devices and procedures made available only to service/maintenance personnel.

(h) The requirements of paragraphs (e), (f), and (g) of this section shall not apply if:

(1) The equipment has been designed and manufactured specifically for aircraft use; and

(2) The part 90 certification limits the use of the equipment to operations only under § 90.423.

(i) Equipment certificated after February 16, 1988 and marketed for public safety operation in the 806–809/851–854 MHz bands must have the capability to be programmed for operation on the mutual aid channels as designated in § 90.617(a)(1) of the rules.

(j) Except where otherwise specially provided for, transmitters operating on frequencies in the 150–174 MHz and 406–512 MHz bands must comply with the following:

(1) Applications for certification received on or after January 1, 2005, for mobile and portable transmitters designed to transmit voice on public safety frequencies in the 150–174 MHz band will be granted only if the mobile/portable equipment is capable of operating on the nationwide public safety interoperability calling channel in the 150–174 MHz band. (See § 90.20(c), (d) of this part.) Applications for certification received on or after January 1, 2005, for mobile and portable transmitters designed to transmit voice on public safety frequencies in the 450–470 MHz band will be granted only if the mobile/portable equipment is capable of operating on the nationwide public safety interoperability calling channel in the 450–470 MHz band. (See § 90.20(c), (d) of this part.)

(2) Applications for certification received on or after February 14, 1997 but before January 1, 2005 will only be granted for equipment with the following channel bandwidths:

(i) 12.5 kHz or less for single bandwidth mode equipment or multi-bandwidth mode equipment with a maximum channel bandwidth of 12.5 kHz;

(ii) 25 kHz for multi-bandwidth mode equipment with a maximum channel bandwidth of 25 kHz if it is capable of operating on channels of 12.5 kHz or less; and

(iii) 25 kHz if the equipment meets the efficiency standard of paragraph (j)(3) of this section.

(3) Applications for part 90 certification of transmitters designed to operate on frequencies in the 150.8–162.0125 MHz, 173.2–173.4 MHz, and/or 421–512 MHz bands, received on or after February 14, 1997 must include a certification that the equipment meets a spectrum efficiency standard of one voice channel per 12.5 kHz of channel bandwidth. Additionally, if the equipment is capable of transmitting data, has transmitter output power greater than 500 mW, and has a channel bandwidth of more than 6.25 kHz, the equipment must be capable of supporting a minimum data rate of 4800 bits per second per 6.25 kHz of channel bandwidth.

(4) Applications for part 90 certification of transmitters designed to operate on frequencies in the 150.8–162.0125 MHz, 173.2–173.4 MHz, and/or 421–512 MHz bands, received on or after January 1, 2011, except for hand-held transmitters with an output power of two watts or less, will only be granted for equipment with the following channel bandwidths:

(i) 6.25 kHz or less for single bandwidth mode equipment;

(ii) 12.5 kHz for multi-bandwidth mode equipment with a maximum channel bandwidth of 12.5 kHz if it is capable of operating on channels of 6.25 kHz or less;

(iii) 25 kHz for multi-bandwidth mode equipment with a maximum channel bandwidth of 25 kHz if it is capable of operating on channels of 6.25 kHz or less; and

(iv) Up to 25 kHz if the equipment meets the efficiency standard of paragraph (j)(5) of this section.

(5) Applications for part 90 certification of transmitters designed to operate on frequencies in the 150.8–162.0125 MHz, 173.2–173.4 MHz, and/or 421–512 MHz bands, received on or after January 1, 2011, must include a certification that the equipment meets a spectrum efficiency standard of one voice channel per 6.25 kHz of channel bandwidth. Additionally, if the equipment is capable of transmitting data, has transmitter output power greater than 500 mW, and has a channel bandwidth of more than 6.25 kHz, the equipment must be capable of supporting a minimum data rate of 4800 bits per second per 6.25 kHz of channel bandwidth.

(6) Modification and permissive changes to certification grants.

(i) The Commission's Equipment Authorization Division will not allow adding a multi-mode or narrowband operation capability to single bandwidth mode transmitters, except under the following conditions:

(A) Transmitters that have the inherent capability for multi-mode or narrowband operation allowed in paragraphs (j)(2) and (j)(4) of this section, may have their grant of certification modified (reissued) upon demonstrating that the original unit complies with the technical requirements for operation; and

(B) New FCC Identifiers will be required to identify equipment that needs to be modified to comply with the requirements of paragraphs (j)(2) and (j)(4) of this section.

(ii) All other applications for modification or permissive changes will be subject to the Rules of part 2 of this chapter.

(7) Transmitters designed only for one-way paging operations may be certificated with up to a 25 kHz bandwidth and are exempt from the spectrum efficiency requirements of paragraphs (j)(3) and (j)(5) of this section.

(8) The Commission's Equipment Authorization Division may, on a case by case basis, grant certification to equipment with slower data rates than specified in paragraphs (j)(3) and (j)(5) of this section, provided that a technical analysis is submitted with the application which describes why the slower data rate will provide more spectral efficiency than the standard data rate.

(9) Transmitters used for stolen vehicle recovery on 173.075 MHz must comply with the requirements of § 90.20(e)(6).

(10) Except as provided in this paragraph, single-mode and multi-mode transmitters designed to operate in the 150–174 MHz and 421–512 MHz bands that operate with a maximum channel bandwidth greater than 12.5 kHz shall not be manufactured in, or imported into, the United States after January 1, 2011, except as follows:

(i) To the extent that the equipment meets the efficiency standard of paragraph (j)(3) of this section, or

(ii) Where operation with a bandwidth greater than 12.5 kHz is specified elsewhere.

(k) For transmitters operating on frequencies in the 220–222 MHz band, certification will only be granted for equipment with channel bandwidths up to 5 kHz, except that certification will be granted for equipment operating on 220–222 MHz band Channels 1 through 160 (220.0025 through 220.7975/221.0025 through 221.7975), 171 through 180 (220.8525 through 220.8975/221.8525 through 221.8975), and 186 through 200 (220.9275 through 220.9975/221.9275 through 221.9975) with channel bandwidths greater than 5 kHz.

(l) Ocean buoy and wildlife tracking transmitters operating in the band 40.66–40.70 MHz or 216–220 MHz under the provisions of § 90.248 of this part shall be authorized under verification procedure pursuant to subpart J of part 2 of this chapter.

(m) Applications for part 90 certification received after December 31, 2014 will only be granted to transmitters designed to operate in the voice mode on channels designated in § 90.531.(b)(5) or § 90.531(b)(6) that provide at least one voice path per 6.25 kHz of spectrum bandwidth.

(n) Transmitters designed to operate in the voice mode on channels designated in §§ 90.531(b)(5) or 90.531(b)(6) that do not provide at least one voice path of 6.25 kHz of spectrum bandwidth shall not be manufactured in or imported into the United States after December 31, 2014. Marketing of these transmitters shall not be permitted after December 31, 2014.

(o) *Equipment certification for transmitters in the 3650–3700 MHz band.* (1) Applications for all transmitters must describe the methodology used to meet the requirement that each transmitter employ a contention based protocol and indicate whether it is capable of avoiding co-frequency interference with devices using all other types of contention-based protocols (see §§ 90.7, 90.1305 and 90.1321 of this part);

(2) Applications for mobile transmitters must identify the base stations with which they are designed to communicate and describe how the requirement to positively receive and decode an enabling signal is incorporated (see § 90.1333 of this part); and

(3) Applications for systems using advanced antenna technology must provide the algorithm used to reduce the equivalent isotropically radiated power (EIRP) to the maximum allowed in the event of overlapping beams (see § 90.1321 of this part).

(4) Applications for fixed transmitters must include a description of the installation instructions and guidelines for RF safety exposure requirements that will be included with the transmitter. (See § 90.1335).

(p) Certification requirements for signal boosters are set forth in § 90.219.

[43 FR 54791, Nov. 22, 1978; 44 FR 32219, June 5, 1979]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.203, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.205 Power and antenna height limits.

Applicants for licenses must request and use no more power than the actual power necessary for satisfactory operation. Except where otherwise specifically provided for, the maximum power that will be authorized to applicants whose license applications for new stations are filed after August 18, 1995 is as follows:

(a) *Below 25 MHz.* For single sideband operations (J3E emission), the maximum transmitter peak envelope power is 1000 watts.

(b) *25–50 MHz.* The maximum transmitter output power is 300 watts.

(c) *72–76 MHz.* The maximum effective radiated power (ERP) for stations operating on fixed frequencies is 300 watts. Stations operating on mobile-only frequencies are limited to one watt transmitter output power.

(d) *150–174 MHz.* (1) The maximum allowable station ERP is dependent upon the station's antenna HAAT and required service area and will be authorized in accordance with table 1. Applicants requesting an ERP in excess of that listed in table 1 must submit an engineering analysis based upon generally accepted engineering practices and standards that includes coverage contours to demonstrate that the requested station parameters will not produce coverage in excess of that which the applicant requires.

(2) Applications for stations where special circumstances exist that make it necessary to deviate from the ERP and antenna heights in Table 1 will be submitted to the frequency coordinator accompanied by a technical analysis, based upon generally accepted engineering practices and standards, that demonstrates that the requested station parameters will not produce a signal strength in excess of 37 dBu at any point along the edge of the requested service area. The coordinator may then recommend any ERP appropriate to meet this condition.

(3) An applicant for a station with a service area radius greater than 40 km (25 mi) must justify the requested service area radius, which will be authorized only in accordance with table 1, note 4. For base stations with service areas greater than 80 km, all operations 80 km or less from the base station will be on a primary basis and all operations outside of 80 km from the base station will be on a secondary basis and will be entitled to no protection from primary operations.

TABLE 1—150–174MHz—MAXIMUM ERP/REFERENCE HAAT FOR A SPECIFIC SERVICE AREA RADIUS

	Service area radius (km)									
	3	8	13	16	24	32	40	48 [4]	64 [4]	80 [4]
Maximum ERP (w) [1]	1	28	178	[2] 500	[2] 500	[2] 500	500	[2] 500	[2] 500	[2] 500
Up to reference HAAT (m) [3]	15	15	15	15	33	65	110	160	380	670

[1] Maximum ERP indicated provides for a 37 dBu signal strength at the edge of the service area per FCC Report R–6602, Fig. 19 (See § 73.699, Fig. 10).
[2] Maximum ERP of 500 watts allowed. Signal strength at the service area contour may be less than 37 dBu.
[3] When the actual antenna HAAT is greater than the reference HAAT, the allowable ERP will be reduced in accordance with the following equation: $ERP_{allow} = ERP_{max} \times (HAAT_{ref} / HAAT_{actual})^2$.
[4] Applications for this service area radius may be granted upon specific request with justification and must include a technical demonstration that the signal strength at the edge of the service area does not exceed 37 dBu.

(e) *217–220 MHz*. Limitations on power and antenna heights are specified in § 90.259.

(f) *220–222 MHz*. Limitations on power and antenna heights are specified in § 90.729.

(g) *421–430 MHz*. Limitations on power and antenna heights are specified in § 90.279.

(h) *450–470 MHz*. (1) The maximum allowable station effective radiated power (ERP) is dependent upon the station's antenna HAAT and required service area and will be authorized in accordance with table 2. Applicants requesting an ERP in excess of that listed in table 2 must submit an engineering analysis based upon generally accepted engineering practices and standards that includes coverage contours to demonstrate that the requested station parameters will not produce coverage in excess of that which the applicant requires.

(2) Applications for stations where special circumstances exist that make it necessary to deviate from the ERP and antenna heights in Table 2 will be submitted to the frequency coordinator accompanied by a technical analysis, based upon generally accepted engineering practices and standards, that demonstrates that the requested station parameters will not produce a signal strength in excess of 39 dBu at any point along the edge of the requested service area. The coordinator may then recommend any ERP appropriate to meet this condition.

(3) An applicant for a station with a service area radius greater than 32 km (20 mi) must justify the requested service area radius, which may be authorized only in accordance with table 2, note 4. For base stations with service areas greater than 80 km, all operations 80 km or less from the base station will be on a primary basis and all operations outside of 80 km from the base station will be on a secondary basis and will be entitled to no protection from primary operations.

TABLE 2—450–470 MHz—MAXIMUM ERP/REFERENCE HAAT FOR A SPECIFIC SERVICE AREA RADIUS

	Service area radius (km)									
	3	8	13	16	24	32	40 [4]	48 [4]	64 [4]	80 [4]
Maximum ERP (w) [1]	2	100	[2] 500	[2] 500	[2] 500	[2] 500	[2] 500	[2] 500	[2] 500	[2] 500
Up to reference HAAT (m) [3]	15	15	15	27	63	125	250	410	950	2700

[1] Maximum ERP indicated provides for a 39 dBu signal strength at the edge of the service area per FCC Report R–6602, Fig. 29 (See § 73.699, Fig. 10 b).
[2] Maximum ERP of 500 watts allowed. Signal strength at the service area contour may be less than 39 dBu.
[3] When the actual antenna HAAT is greater than the reference HAAT, the allowable ERP will be reduced in accordance with the following equation: $ERP_{allow} = ERP_{max} \times (HAAT_{ref} / HAAT_{actual})^2$.
[4] Applications for this service area radius may be granted upon specific request with justification and must include a technical demonstration that the signal strength at the edge of the service area does not exceed 39 dBu.

(i) *470–512 MHz*. Power and height limitations are specified in §§ 90.307 and 90.309.

(j) *758–775 MHz and 788–805 MHz*. Power and height limitations are specified in §§ 90.541 and 90.542.

(k) *806–824 MHz, 851–869 MHz, 896–901 MHz and 935–940 MHz.* Power and height limitations are specified in § 90.635

(l) *902–928 MHz.* LMS systems operating pursuant to subpart M of this part in the 902–927.25 MHz band will be authorized a maximum of 30 watts ERP. LMS equipment operating in the 927.25–928 MHz band will be authorized a maximum of 300 watts ERP. ERP must be measured as peak envelope power. Antenna heights will be as specified in § 90.353(h).

(m) *929–930 MHz.* Limitations on power and antenna heights are specified in § 90.494.

(n) *1427–1429.5 MHz and 1429.5–1432 MHz.* Limitations on power are specified in § 90.259.

(o) *2450–2483.5 MHz.* The maximum transmitter power is 5 watts.

(p) *4940–4990 MHz.* Limitations on power are specified in § 90.1215.

(q) *5850–5925 MHz.* Power and height limitations are specified in subpart M of this part.

(r) *All other frequency bands.* Requested transmitter power will be considered and authorized on a case by case basis.

(s) The output power shall not exceed by more than 20 percent either the output power shown in the Radio Equipment List [available in accordance with § 90.203(a)(1)] for transmitters included in this list or when not so listed, the manufacturer's rated output power for the particular transmitter specifically listed on the authorization.

[60 FR 37262, July 19, 1995, as amended at 62 FR 2039, Jan. 15, 1997; 63 FR 58651, Nov. 2, 1998; 64 FR 66409, Nov. 26, 1999; 67 FR 41860, June 20, 2002; 68 FR 38639, June 30, 2003; 69 FR 46443, Aug. 3, 2004; 72 FR 48860, Aug. 24, 2007; 79 FR 600, Jan. 6, 2014]

§ 90.207 Types of emissions.

Unless specified elsewhere in this part, stations will be authorized emissions as provided for in paragraphs (b) through (n) of this section.

(a) *Most common emission symbols.* For a complete listing of emission symbols allowable under this part, see § 2.201 of this chapter.

(1) The first symbol indicates the type of modulation on the transmitter carrier.

A—Amplitude modulation, double sideband with identical information on each sideband.
F—Frequency modulation.
G—Phase modulation.
J—Single sideband with suppressed carrier.
P—Unmodulated pulse.
W—Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a preestablished sequence, in a combination of two or more of the following modes: amplitude, angle, pulse.

(2) The second symbol indicates the type of signal modulating the transmitter carrier.

0—No modulation.
1—Digital modulation, no subcarrier.
2—Digital modulation, modulated subcarrier.
3—Analog modulation.

(3) The third symbol indicates the type of transmitted information.

A—Telegraphy for aural reception.
B—Telegraphy for machine reception.
C—Facsimile.
D—Data, telemetry, and telecommand.
E—Voice.
N—No transmitted information.
W—Combination of the above.

(b) Authorizations to use A3E, F3E, or G3E emission also include the use of emissions for tone signals or signaling devices whose sole functions are to establish and to maintain communications, to provide automatic station identification, and for operations in the Public Safety Pool, to activate emergency warning devices used solely for the purpose of advising the general public or emergency personnel of an impending emergency situation.

(c) The use of F3E or G3E emission in these services will be authorized only on frequencies above 25 MHz.

(d) Except for Traveler's Information stations in the Public Safety Pool authorized in accordance with § 90.242, only J3E emission will be authorized for telephony systems on frequencies below 25 MHz.

(e) For non-voice paging operations, only A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, or G2D emissions will be authorized.

(f) For radioteleprinter operations that may be authorized in accordance with § 90.237, only F1B, F2B, G1B or G2B emissions will be authorize above 25

MHz, and A1B or A2B emissions below 25 MHz.

(g) For radiofacsimile operations that may be authorized in accordance with § 90.237, only F3C or G3C emissions will be authorized above 25 MHz, and A3C emissions below 25 MHz.

(h) [Reserved]

(i) For telemetry operations, when specifically authorized under this part, only A1D, A2D, F1D, or F2D emissions will be authorized.

(j) For call box operations that may be authorized in accordance with § 90.241, only A1A, A1D, A2B, A2D, F1B, F1D, F2B, F2D, G1B, G1D, G2B, G2D, F3E or G3E emissions will be authorized.

(k) For radiolocation operations as may be authorized in accordance with subpart F, unless otherwise provided for any type of emission may be authorized upon a satisfactory showing of need.

(l) For stations in the Public Safety and Industrial/Business Pools utilizing digital voice modulation, in either the scrambled or unscrambled mode, F1E or G1E emission will be authorized. Authorization to use digital voice emissions is construed to include the use of F1D, F2D, G1D, or G2D emission subject to the provisions of § 90.233.

(m) For narrowband operations in a 3.6 kHz maximum authorized bandwith, any modulation type may be used which complies with the emission limitations of § 90.209.

(n) *Other emissions*. Requests for emissions other than those listed in paragraphs (c) through (e) of this section will be considered on a case-by-case basis to ensure that the requested emission will not cause more interference than other currently permitted emissions.

[49 FR 48711, Dec. 14, 1984, as amended at 50 FR 13606, Apr. 5, 1985; 50 FR 25240, June 18, 1985; 52 FR 29856, Aug. 12, 1987; 54 FR 38681, Sept. 20, 1989; 60 FR 15252, Mar. 23, 1995; 60 FR 37263, July 19, 1995; 62 FR 2039, Jan. 15, 1997; 62 FR 18927, Apr. 17, 1997; 64 FR 36270, July 6, 1999; 72 FR 35194, June 27, 2007]

§ 90.209 Bandwidth limitations.

(a) Each authorization issued to a station licensed under this part will show an emission designator representing the class of emission authorized. The designator will be prefixed by a specified necessary bandwidth. This number does not necessarily indicate the bandwidth occupied by the emission at any instant. In those cases where § 2.202 of this chapter does not provide a formula for the computation of necessary bandwidth, the occupied bandwidth, as defined in part 2 of this chapter, may be used in lieu of the necessary bandwidth.

(b) The maximum authorized single channel bandwidth of emission corresponding to the type of emission specified in § 90.207 is as follows:

(1) For A1A or A1B emissions, the maximum authorized bandwidth is 0.25 kHz. The maximum authorized bandwidth for type A3E emission is 8 kHz.

(2) For operations below 25 MHz utilizing J3E emission, the bandwidth occupied by the emission shall not exceed 3000 Hz. The assigned frequency will be specified in the authorization. The authorized carrier frequency will be 1400 Hz lower in frequency than the assigned frequency. Only upper sideband emission may be used. In the case of regularly available double sideband radiotelephone channels, an assigned frequency for J3E emissions is available either 1600 Hz below or 1400 Hz above the double sideband radiotelephone assigned frequency.

(3) For all other types of emissions, the maximum authorized bandwidth shall not be more than that normally authorized for voice operations.

(4) Where a frequency is assigned exclusively to a single licensee, more than a single emission may be used within the authorized bandwidth. In such cases, the frequency stability requirements of § 90.213 must be met for each emission.

(5) Unless specified elsewhere, channel spacings and bandwidths that will be authorized in the following frequency bands are given in the following table.

STANDARD CHANNEL SPACING/BANDWIDTH

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
Below 25 [2].		
25–50	20	20
72–76	20	20
150–174	[1]7.5	[1 3]20/11.25/6
216–220 [5]	6.25	20/11.25/6

STANDARD CHANNEL SPACING/BANDWIDTH—Continued

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
220–222	5	4
406–512 [2]	[1] 6.25	[1 3] 20/11.25/6
806–809/851–854	12.5	20
809–824/854–869	25	20
896–901/935–940	12.5	13.6
902–928 [4].		
929–930	25	20
1427–1432 [5]	12.5	12.5
[3] 2450–2483.5 [2].		
Above 2500 [2].		

[1] For stations authorized on or after August 18, 1995.

[2] Bandwidths for radiolocation stations in the 420–450 MHz band and for stations operating in bands subject to this footnote will be reviewed and authorized on a case-by-case basis.

[3] Operations using equipment designed to operate with a 25 kHz channel bandwidth will be authorized a 20 kHz bandwidth. Operations using equipment designed to operate with a 12.5 kHz channel bandwidth will be authorized a 11.25 kHz bandwidth. Operations using equipment designed to operate with a 6.25 kHz channel bandwidth will be authorized a 6 kHz bandwidth. All stations must operate on channels with a bandwidth of 12.5 kHz or less beginning January 1, 2013, unless the operations meet the efficiency standard of § 90.203(j)(3).

[4] The maximum authorized bandwidth shall be 12 MHz for non-multilateration LMS operations in the band 909.75–921.75 MHz and 2 MHz in the band 902.00–904.00 MHz. The maximum authorized bandwidth for multilateration LMS operations shall be 5.75 MHz in the 904.00–909.75 MHz band; 2 MHz in the 919.75–921.75 MHz band; 5.75 MHz in the 921.75–927.25 MHz band and its associated 927.25–927.50 MHz narrowband forward link; and 8.00 MHz if the 919.75–921.75 MHz and 921.75–927.25 MHz bands and their associated 927.25–927.50 MHz and 927.50–927.75 MHz narrowband forward links are aggregated.

[5] See § 90.259.

[6] Operations using equipment designed to operate with a 25 kHz channel bandwidth may be authorized up to a 22 kHz bandwidth if the equipment meets the Adjacent Channel Power limits of § 90.221.

(6)(i) Beginning January 1, 2011, no new applications for the 150–174 MHz and/or 421–512 MHz bands will be acceptable for filing if the applicant utilizes channels with an authorized bandwidth exceeding 11.25 kHz, unless specified elsewhere or the operations meet the efficiency standards of § 90.203(j)(3).

(ii) Beginning January 1, 2011, no modification applications for stations in the 150–174 MHz and/or 421–512 MHz bands that increase the station's authorized interference contour, will be acceptable for filing if the applicant utilizes channels with an authorized bandwidth exceeding 11.25 kHz, unless specified elsewhere or the operations meet the efficiency standards of § 90.203(j)(3). See § 90.187(b)(2)(iii) and (iv) for interference contour designations and calculations. Applications submitted pursuant to this paragraph must comply with frequency coordination requirements of § 90.175.

(7) Economic Area (EA)-based licensees in frequencies 817–824/862–869 MHz (813.5–824/858.5–869 MHz in the counties listed in § 90.614(c)) may exceed the standard channel spacing and authorized bandwidth listed in paragraph (b)(5) of this section in any National Public Safety Planning Advisory Committee Region when all 800 MHz public safety licensees in the Region have completed band reconfiguration consistent with this part. In any National Public Safety Planning Advisory Committee Region where the 800 MHz band reconfiguration is incomplete, EA-based licensees in frequencies 817–821/862–866 MHz (813.5–821/858.5–866 MHz in the counties listed in § 90.614(c)) may exceed the standard channel spacing and authorized bandwidth listed in paragraph (b)(5) of this section. Upon all 800 MHz public safety licensees in a National Public Safety Planning Advisory Committee Region completing band reconfiguration, EA-based 800 MHz SMR licensees in the 821–824/866–869 MHz band may exceed the channel spacing and authorized bandwidth in paragraph (b)(5) of this section. Licensees authorized to exceed the standard channel spacing and authorized bandwidth under this paragraph must provide at least 30 days written notice prior to initiating such service in the bands listed herein to every 800 MHz public safety licensee with a base station in an affected National Public Safety Planning Advisory Committee Region, and every 800 MHz public safety licensee with a base station within 113 kilometers (70 miles) of an affected National Public Safety Planning Advisory Committee Region. Such notice shall include the estimated date upon which the EA-based 800 MHz SMR licensee intends to begin operations that exceed the channel spacing and authorized bandwidth in paragraph (b)(5) of this section.

[60 FR 37263, July 19, 1995, as amended at 67 FR 41860, June 20, 2002; 68 FR 42314, July 17, 2003; 68 FR 54769, Sept. 18, 2003; 69 FR 39867, July 1, 2004; 69 FR 67837, Nov. 22, 2004; 70 FR 21661, Apr. 27, 2005; 70 FR 34693, June 15, 2005; 72 FR 35194, June 27, 2007; 73 FR 34201, June 17, 2008; 77 FR 33979, June 8, 2012; 77 FR 61537, Oct. 10, 2012]

§ 90.210 Emission masks.

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (o) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating under this part.

APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with audio low pass filter	Mask for equipment without audio low pass filter
Below 25 [1]	A or B	A or C
25–50	B	C
72–76	B	C
150–174 [2]	B, D, or E	C, D or E
150 paging only	B	C
220–222	F	F
421–512 [2 5]	B, D, or E	C, D, or E
450 paging only	B	G
806–809/851–854	B	H
809–824/854–869 [3 5]	B	G
896–901/935–940	I	J
902–928	K	K
929–930	B	G
4940–4990 MHz	L or M	L or M
5850–5925 [4].		
All other bands	B	C

[1] Equipment using single sideband J3E emission must meet the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable.
[2] Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask B or C, as applicable. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D, and equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask E.
[3] Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of § 90.691 of this chapter.
[4] DSRCS Roadside Units equipment in the 5850–5925 MHz band is governed under subpart M of this part.
[5] Equipment may alternatively meet the Adjacent Channel Power limits of § 90.221.

(a) *Emission Mask A*. For transmitters utilizing J3E emission, the carrier must be at least 40 dB below the peak envelope power and the power of emissions must be reduced below the output power (P in watts) of the transmitter as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 150 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 150 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log P dB.

(b) *Emission Mask B*. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(c) *Emission Mask C*. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier output power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5 kHz, but not more than 10 kHz: At least 83 log (f_d/5) dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but not more than 250 percent of the authorized bandwidth: At least 29 log (f_d^2/11) dB or 50 dB, whichever is the lesser attenuation;

(3) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(d) *Emission Mask D—12.5 kHz channel bandwidth equipment*. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_0 to 5.625 kHz removed from f_0: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.625 kHz but no more than 12.5 kHz: At least 7.27(f_d − 2.88 kHz) dB.

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

(e) *Emission Mask E—6.25 kHz or less channel bandwidth equipment*. For transmitters designed to operate with a 6.25 kHz or less bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_0 to 3.0 kHz removed from f_0: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 3.0 kHz but no more than 4.6 kHz: At least 30 + 16.67(f_d − 3 kHz) or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(3) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two or three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (o) of this

section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, an alternate procedure may be used provided prior Commission approval is obtained.

(f) *Emission Mask F.* For transmitters operating in the 220–222 MHz frequency band, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_o to the edge of the authorized bandwidth f_c: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d -2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(3) On any frequency beyond 3.75 kHz removed from the center of the authorized bandwidth $f_d \leqq$ At least 55 + 10 log (P) dB.

(g) *Emission Mask G.* For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but no more than 250 percent of the authorized bandwidth: At least 116 log (f_d/6.1) dB, or 50 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation;

(2) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(h) *Emission Mask H.* For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least 107 log (f_d/4) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least 40.5 log (f_d/1.16) dB;

(4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least 116 log (f_d/6.1) dB;

(5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least 43 + log (P) dB.

(i) *Emission Mask I.* For transmitters that are equipped with an audio low pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 6.8 kHz, but no more than 9.0 kHz: At least 25 dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least 43 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation.

(j) *Emission Mask J.* For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2.5 kHz, but no more than 6.25 kHz: At least 53 log (f_d/2.5) dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 6.25 kHz, but no more than 9.5 kHz: At least 103 log (f_d/3.9) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 9.5 kHz: At least 157 log

(f_d/5.3) dB, or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(k) *Emission Mask K*—(1) *Wideband multilateration transmitters*. For transmitters authorized under subpart M to provide forward or reverse links in a multilateration system in the subbands 904–909.75 MHz, 921.75–927.25 MHz and 919.75–921.75 MHz, and which transmit an emission occupying more than 50 kHz bandwidth: in any 100 kHz band, the center frequency of which is removed from the center of authorized sub-band(s) by more than 50 percent of the authorized bandwidth, the power of emissions shall be attenuated below the transmitter output power, as specified by the following equation, but in no case less than 31 dB:

$A=16+0.4\ (D-50)+10\ \log B$ (attenuation greater than 66 dB is not required)

Where:

A = attenuation (in decibels) below the maximum permitted output power level

D = displacement of the center frequency of the measurement bandwidth from the center frequency of the authorized sub-band, expressed as a percentage of the authorized bandwidth B

B = authorized bandwidth in megahertz.

(2) *Narrowband forward link transmitters*. For LMS multilateration narrowband forward link transmitters operating in the 927.25–928 MHz frequency band the power of any emission shall be attenuated below the transmitter output power (P) in accordance with following schedule:

On any frequency outside the authorized sub-band and removed from the edge of the authorized sub-band by a displacement frequency (f_d in kHz): at least 116 log ((f_d+10)/6.1) dB or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(3) *Other transmitters*. For all other transmitters authorized under subpart M that operate in the 902–928 MHz band, the peak power of any emission shall be attenuated below the power of the highest emission contained within the licensee's sub-band in accordance with the following schedule:

(i) On any frequency within the authorized bandwidth: Zero dB.

(ii) On any frequency outside the licensee's sub-band edges: 55 + 10 log(P) dB, where (P) is the highest emission (watts) of the transmitter inside the licensee's sub-band.

(4) In the 902–928 MHz band, the resolution bandwidth of the instrumentation used to measure the emission power shall be 100 kHz, except that, in regard to paragraph (2) of this section, a minimum spectrum analyzer resolution bandwidth of 300 Hz shall be used for measurement center frequencies with 1 MHz of the edge of the authorized subband. The video filter bandwidth shall not be less than the resolution bandwidth.

(5) Emission power shall be measured in peak values.

(6) The LMS sub-band edges for non-multilateration systems for which emissions must be attenuated are 902.00, 904.00, 909.5 and 921.75 MHz.

(l) *Emission Mask L*. For low power transmitters (20 dBm or less) operating in the 4940–4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency between 0–45% of the authorized bandwidth (BW): 0 dB.

(2) On any frequency removed from the assigned frequency between 45–50% of the authorized bandwidth: 219 log (% of (BW)/45) dB.

(3) On any frequency removed from the assigned frequency between 50–55% of the authorized bandwidth: 10 + 242 log (% of (BW)/50) dB.

(4) On any frequency removed from the assigned frequency between 55–100% of the authorized bandwidth: 20 + 31 log (% of (BW)/55) dB attenuation.

(5) On any frequency removed from the assigned frequency between 100–150% of the authorized bandwidth: 28 + 68 log (% of (BW)/100) dB attenuation.

(6) On any frequency removed from the assigned frequency above 150% of the authorized bandwidth: 40 dB.

(7) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 kHz. The power spectral density is the power

measured within the resolution bandwidth of the measurement device divided by the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

(m) *Emission Mask M.* For high power transmitters (greater that 20 dBm) operating in the 4940–4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency between 0–45% of the authorized bandwidth (BW): 0 dB.

(2) On any frequency removed from the assigned frequency between 45–50% of the authorized bandwidth: 568 log (% of (BW)/45) dB.

(3) On any frequency removed from the assigned frequency between 50–55% of the authorized bandwidth: 26 + 145 log (% of BW/50) dB.

(4) On any frequency removed from the assigned frequency between 55–100% of the authorized bandwidth: 32 + 31 log (% of (BW)/55) dB.

(5) On any frequency removed from the assigned frequency between 100–150% of the authorized bandwidth: 40 + 57 log (% of (BW)/100) dB.

(6) On any frequency removed from the assigned frequency between above 150% of the authorized bandwidth: 50 dB or 55 + 10 log (P) dB, whichever is the lesser attenuation.

(7) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 kHz. The power spectral density is the power measured within the resolution bandwidth of the measurement device divided by the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

NOTE TO PARAGRAPH (m): Low power devices may as an option, comply with paragraph (m).

(n) *Other frequency bands.* Transmitters designed for operation under this part on frequencies other than listed in this section must meet the emission mask requirements of Emission Mask B. Equipment operating under this part on frequencies allocated to but shared with the Federal Government, must meet the applicable Federal Government technical standards.

(o) *Instrumentation.* The reference level for showing compliance with the emission mask shall be established, except as indicated in §§ 90.210 (d), (e), and (k), using standard engineering practices for the modulation characteristic used by the equipment under test. When measuring emissions in the 150–174 MHz and 421–512 MHz bands the following procedures will apply. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For frequencies more than 50 kHz removed from the edge of the authorized bandwidth a resolution of at least 100 kHz must be used for frequencies below 1000 MHz. Above 1000 MHz the resolution bandwidth of the instrumentation must be at least 1 MHz. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, then an alternate procedure may be used provided prior Commission approval is obtained.

[60 FR 37264, July 19, 1995, as amended at 61 FR 4235, Feb. 5, 1996; 61 FR 6155, Feb. 16, 1996; 61 FR 18986, Apr. 30, 1996; 62 FR 41214, July 31, 1997; 62 FR 52044, Oct. 6, 1997; 64 FR 66409, Nov. 26, 1999; 67 FR 63288, Oct. 11, 2002; 68 FR 38639, June 30, 2003; 69 FR 46443, Aug. 3, 2004; 69 FR 67838, Nov. 22, 2004; 70 FR 28466, May 18, 2005; 70 FR 61061, Oct. 20, 2005; 72 FR 35195, June 27, 2007; 77 FR 61538, Oct. 10, 2012; 78 FR 28755, May 16, 2013]

§ 90.212 Provisions relating to the use of scrambling devices and digital voice modulation.

(a) Analog scrambling techniques may be employed at any station authorized the use of A3E, F3E, or G3E

emission, subject to the provision of paragraph (d) of this section.

(b) The use of digital scrambling techniques or digital voice modulation requires the specific authorization of F1E or G1E emission, and these emissions will only be authorized subject to the provisions of paragraph (d) of this section.

(c) The transmission of any non-voice information or data under the authorization of F1E or G1E emission is prohibited. However, stations authorized the use of F1E or G1E emission may also be authorized F1D, F2D, G1D or G2D emission for non-voice communication purposes, pursuant to § 90.207(l).

(d) Station identification shall be transmitted in the unscrambled analog mode (clear voice) or Morse code in accordance with the provisions of § 90.425. All digital encoding and digital modulation shall be disabled during station identification.

[43 FR 54791, Nov. 22, 1978, as amended at 47 FR 15340, Apr. 9, 1982; 49 FR 48711, Dec. 14, 1984; 72 FR 35195, June 27, 2007]

§ 90.213 Frequency stability.

(a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table.

MINIMUM FREQUENCY STABILITY

[Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	[1 2 3] 100	100	200
25–50	20	20	50
72–76	5	.....	50
150–174	[5 11] 5	[6] 5	[4 6] 50
216–220	1.0	.....	1.0
220–222 [12]	0.1	1.5	1.5
421–512	[7 11 14] 2.5	[8] 5	[8] 5
806–809	[14] 1.0	1.5	1.5
809–824	[14] 1.5	2.5	2.5
851–854	1.0	1.5	1.5
854–869	1.5	2.5	2.5
896–901	[14] 0.1	1.5	1.5
902–928	2.5	2.5	2.5
902–928 [13]	2.5	2.5	2.5
929–930	1.5	.....	.....
935–940	0.1	1.5	1.5
1427–1435	[9] 300	300	300

MINIMUM FREQUENCY STABILITY—Continued

[Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Above 2450 [10]	.....	.....	.....

[1] Fixed and base stations with over 200 watts transmitter power must have a frequency stability of 50 ppm except for equipment used in the Public Safety Pool where the frequency stability is 100 ppm.

[2] For single sideband operations below 25 MHz, the carrier frequency must be maintained within 50 Hz of the authorized carrier frequency.

[3] Travelers information station transmitters operating from 530–1700 kHz and transmitters exceeding 200 watts peak envelope power used for disaster communications and long distance circuit operations pursuant to §§ 90.242 and 90.264 must maintain the carrier frequency to within 20 Hz of the authorized frequency.

[4] Stations operating in the 154.45 to 154.49 MHz or the 173.2 to 173.4 MHz bands must have a frequency stability of 5 ppm.

[5] In the 150–174 MHz band, fixed and base stations with a 12.5 kHz channel bandwidth must have a frequency stability of 2.5 ppm. Fixed and base stations with a 6.25 kHz channel bandwidth must have a frequency stability of 1.0 ppm.

[6] In the 150–174 MHz band, mobile stations designed to operate with a 12.5 kHz channel bandwidth or designed to operate on a frequency specifically designated for itinerant use or designed for low-power operation of two watts or less, must have a frequency stability of 5.0 ppm. Mobile stations designed to operate with a 6.25 kHz channel bandwidth must have a frequency stability of 2.0 ppm.

[7] In the 421–512 MHz band, fixed and base stations with a 12.5 kHz channel bandwidth must have a frequency stability of 1.5 ppm. Fixed and base stations with a 6.25 kHz channel bandwidth must have a frequency stability of 0.5 ppm.

[8] In the 421–512 MHz band, mobile stations designed to operate with a 12.5 kHz channel bandwidth must have a frequency stability of 2.5 ppm. Mobile stations designed to operate with a 6.25 kHz channel bandwidth must have a frequency stability of 1.0 ppm.

[9] Fixed stations with output powers above 120 watts and necessary bandwidth less than 3 kHz must operate with a frequency stability of 100 ppm. Fixed stations with output powers less than 120 watts and using time-division multiplex, must operate with a frequency stability of 500 ppm.

[10] Except for DSRCS equipment in the 5850–5925 MHz band, frequency stability is to be specified in the station authorization. Frequency stability for DSRCS equipment in the 5850–5925 MHz band is specified in subpart M of this part.

[11] Paging transmitters operating on paging-only frequencies must operate with frequency stability of 5 ppm in the 150–174 MHz band and 2.5 ppm in the 421–512 MHz band.

[12] Mobile units may utilize synchronizing signals from associated base stations to achieve the specified carrier stability.

[13] Fixed non-multilateration transmitters with an authorized bandwidth that is more than 40 kHz from the band edge, intermittently operated hand-held readers, and mobile transponders are not subject to frequency tolerance restrictions.

[14] Control stations may operate with the frequency tolerance specified for associated mobile frequencies.

(b) For the purpose of determining the frequency stability limits, the power of a transmitter is considered to be the maximum rated output power as specified by the manufacturer.

[60 FR 37266, July 19, 1995, as amended at 61 FR 4235, Feb. 5, 1996; 61 FR 18986, Apr. 30, 1996; 61 FR 38403, July 24, 1996; 62 FR 2040, Jan. 15, 1997; 62 FR 18927, Apr. 17, 1997; 67 FR 41860, June 20, 2002; 69 FR 46443, Aug. 3, 2004; 69 FR 67838, Nov. 22, 2004]

§ 90.214 Transient frequency behavior.

Transmitters designed to operate in the 150–174 MHz and 421–512 MHz frequency bands must maintain transient frequencies within the maximum frequency difference limits during the time intervals indicated:

Time intervals [1] [2]	Maximum frequency difference [3]	All equipment	
		150 to 174 MHz	421 to 512 MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 kHz Channels			
t_1 [4]	±25.0 kHz	5.0 ms	10.0 ms
t_2	±12.5 kHz	20.0 ms	25.0 ms
t_3 [4]	±25.0 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
t_1 [4]	±12.5 kHz	5.0 ms	10.0 ms
t_2	±6.25 kHz	20.0 ms	25.0 ms
t_3 [4]	±12.5 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 kHz Channels			
t_1 [4]	±6.25 kHz	5.0 ms	10.0 ms
t_2	±3.125 kHz	20.0 ms	25.0 ms
t_3 [4]	±6.25 kHz	5.0 ms	10.0 ms

[1] t_{on} is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.
t_1 is the time period immediately following t_{on}.
t_2 is the time period immediately following t_1.
t_3 is the time period from the instant when the transmitter is turned off until t_{off}.
t_{off} is the instant when the 1 kHz test signal starts to rise.
[2] During the time from the end of t_2 to the beginning of t_3, the frequency difference must not exceed the limits specified in § 90.213.
[3] Difference between the actual transmitter frequency and the assigned transmitter frequency.
[4] If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

[62 FR 2040, Jan. 15, 1997]

§ 90.215 Transmitter measurements.

(a) The licensee of each station shall employ a suitable procedure to determine that the carrier frequency of each transmitter authorized to operate with an output power in excess of two watts is maintained within the tolerence prescribed in § 90.213. This determination shall be made, and the results entered in the station records in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may affect the carrier frequency or its stability.

(b) The licensee of each station shall employ a suitable procedure to determine that each transmitter authorized to operate with an output power in excess of two watts does not exceed the maximum figure specified on the current station authorization. On authorizations stating only the input power to the final radiofrequency stage, the maximum permissible output power is 75 percent for frequencies below 25 MHz and 60 percent of the input power for frequencies above 25 MHz. If a non-DC final radiofrequency stage is utilized, then the output power shall not exceed 75 percent of the input power. This determination shall be made, and the results thereof entered into the station records, in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may increase the transmitter power input.

(c) The licensee of each station shall employ a suitable procedure to determine that the modulation of each transmitter, which is authorized to operate with an output power in excess of two watts, does not exceed the limits specified in this part. This determination shall be made and the following results entered in the station records, in accordance with the following:

(1) When the transmitter is initially installed;

(2) When any change is made in the transmitter which may affect the modulation characteristics.

(d) The determinations required by paragraphs (a), (b), and (c) of this section may, at the opinion of the licensee, be made by a qualified engineering measurement service, in which case the required record entries shall show the name and address of the engineering measurement service as well as the name of the person making the measurements.

(e) In the case of mobile transmitters, the determinations required by paragraphs (a) and (c) of this section may be made at a test or service bench: *Provided*, That the measurements are made under load conditions equivalent to actual operating conditions; and provided further, that after installation in the mobile unit the transmitter is given a routine check to determine that it is capable of being received

satisfactorly by an appropriate receiver.

§ 90.217 Exemption from technical standards.

Except as noted herein, transmitters used at stations licensed below 800 MHz on any frequency listed in subparts B and C of this part or licensed on a business category channel above 800 MHz which have an output power not exceeding 120 milliwatts are exempt from the technical requirements set out in this subpart, but must instead comply with the following:

(a) For equipment designed to operate with a 25 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 40 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(b) For equipment designed to operate with a 12.5 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 25 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(c) For equipment designed to operate with a 6.25 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 12.5 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(d) Transmitters may be operated in the continuous carrier transmit mode.

(e) Transmitters used for wireless microphone operations and operating on frequencies allocated for Federal use must comply with the requirements of § 90.265(b).

[60 FR 37267, July 19, 1995, as amended at 62 FR 2041, Jan. 15, 1997; 62 FR 18927, Apr. 17, 1997; 70 FR 21661, Apr. 27, 2005]

§ 90.219 Use of signal boosters.

This section contains technical and operational rules allowing the use of signal boosters in the Private Land Mobile Radio Services (PLMRS). Rules for signal booster operation in the Commercial Mobile Radio Services under part 90 are found in § 20.21 of this chapter.

(a) *Definitions*. The definitions in this paragraph apply only to the rules in this section.

Class A signal booster. A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz.

Class B signal booster. A signal booster designed to retransmit any signals within a wide frequency band. A signal booster is deemed to be a Class B signal booster if it has a passband that exceeds 75 kHz.

Coverage area of a PLMRS station. All locations within the normal reliable operating range (service contour) of a PLMRS station.

Deploy a signal booster. Install and/or initially adjust a signal booster.

Distributed Antenna System (DAS). A network of spatially separated antenna nodes connected to a common source via a transport medium that provides wireless service within a geographic area or structure.

Operate a signal booster. Maintain operational control over, and responsibility for the proper functioning of, a signal booster.

Signal booster. A device or system that automatically receives, amplifies, and retransmits signals from wireless stations into and out of building interiors, tunnels, shielded outdoor areas and other locations where these signals would otherwise be too weak for reliable communications. Signal booster systems may contain both Class A and Class B signal boosters as components.

(b) *Authority to operate*. PLMRS licensees for stations operating on assigned channels higher than 150 MHz may operate signal boosters, limited to the service band for which they are authorized, as needed anywhere within the PLMRS stations' service contour, but may not extend the stations' service contour.

(1) PLMRS licensees may also consent to operation of signal boosters by non-licensees (such as a building owner

or a signal booster installation contractor) within their service contour and across their applicable frequencies, but must maintain a reasonable level of control over these operations in order to resolve interference problems.

(i) Non-licensees seeking to operate signal boosters must obtain the express consent of the licensee(s) of the frequencies for which the device or system is intended to amplify. The consent must be maintained in a recordable format that can be presented to an FCC representative or other relevant licensee investigating interference.

(ii) Consent is not required from third party (unintended) licensees whose signals are incidentally retransmitted. However, signal booster operation is on a non-interference basis and operations may be required to cease or alter the operating parameters due to a request from an FCC representative or a licensee's request to resolve interference.

(2) [Reserved]

(c) *Licensee responsibility; interference.* PLMRS licensees that operate signal boosters are responsible for their proper operation, and are responsible for correcting any harmful interference that signal booster operation may cause to other licensed communications services. Normal co-channel transmissions are not considered to be harmful interference. Licensees are required to resolve interference problems pursuant to § 90.173(b). Licensees shall act in good faith regarding the operation of signal boosters and in the resolution of interference due to signal booster operation. Licensees who are unable to determine the location or cause of signal booster interference may seek assistance from the FCC to resolve such problems.

(d) *Deployment rules.* Deployment of signal boosters must be carried out in accordance with the rules in this paragraph.

(1) Signal boosters may be used to improve coverage in weak signal areas only.

(2) Signal boosters must not be used to extend PLMRS stations' normal operating range.

(3) Signal boosters must be deployed such that the radiated power of the each retransmitted channel, on the forward link and on the reverse link, does not exceed 5 Watts effective radiated power (ERP).

(4) Class B signal boosters may be deployed only at fixed locations; mobile operation of Class B signal boosters is prohibited after November 1, 2014.

(5) Class B signal booster installations must be registered in the FCC signal booster database that can be accessed at the following URL: *www.fcc.gov/signal-boosters/registration.*

(6) Good engineering practice must be used in regard to the radiation of intermodulation products and noise, such that interference to licensed communications systems is avoided. In the event of harmful interference caused by any given deployment, the FCC may require additional attenuation or filtering of the emissions and/or noise from signal boosters or signal booster systems, as necessary to eliminate the interference.

(i) In general, the ERP of intermodulation products should not exceed −30 dBm in 10 kHz measurement bandwidth.

(ii) In general, the ERP of noise within the passband should not exceed −43 dBm in 10 kHz measurement bandwidth.

(iii) In general, the ERP of noise on spectrum more than 1 MHz outside of the passband should not exceed −70 dBm in a 10 kHz measurement bandwidth.

(7) Signal booster passbands are limited to the service band or bands for which the operator is authorized. In general, signal boosters should utilize the minimum passband that is sufficient to accomplish the purpose. Except for distributed antenna systems (DAS) installed in buildings, the passband of a Class B booster should not encompass both commercial services (such as ESMR and Cellular Radiotelephone) and part 90 Land Mobile and Public Safety Services.

(e) *Device Specifications.* In addition to the general rules for equipment certification in § 90.203(a)(2) and part 2, subpart J of this chapter, a signal booster must also meet the rules in this paragraph.

(1) The output power capability of a signal booster must be designed for deployments providing a radiated power

not exceeding 5 Watts ERP for each retransmitted channel.

(2) The noise figure of a signal booster must not exceed 9 dB in either direction.

(3) Spurious emissions from a signal booster must not exceed −13 dBm within any 100 kHz measurement bandwidth.

(4) A signal booster must be designed such that all signals that it retransmits meet the following requirements:

(i) The signals are retransmitted on the same channels as received. Minor departures from the exact provider or reference frequencies of the input signals are allowed, *provided that* the retransmitted signals meet the requirements of § 90.213.

(ii) There is no change in the occupied bandwidth of the retransmitted signals.

(iii) The retransmitted signals continue to meet the unwanted emissions limits of § 90.210 applicable to the corresponding received signals (assuming that these received signals meet the applicable unwanted emissions limits by a reasonable margin).

(5) On or after March 1, 2014, a signal booster must be labeled to indicate whether it is a Class A or Class B device, and the label must include the following advisory

(1) In on-line point-of-sale marketing materials,

(2) In any print or on-line owner's manual and installation instructions,

(3) On the outside packaging of the device, and

(4) On a label affixed to the device:

''WARNING. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. You MUST register Class B signal boosters (as defined in 47 CFR 90.219) online at *www.fcc.gov/signal-boosters/registration*. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation.''

[78 FR 21564, Apr. 12, 2013]

§ 90.221 Adjacent channel power limits.

(a) For the frequency bands indicated below, operations using equipment designed to operate with a 25 kHz channel bandwidth may be authorized up to a 22 kHz bandwidth if the equipment meets the adjacent channel power (ACP) limits below. The table specifies a value for the ACP as a function of the displacement from the channel center frequency and a measurement bandwidth of 18 kHz.

(b)(1) Maximum adjacent power levels for frequencies in the 450–470 MHz band:

Frequency offset	Maximum ACP (dBc) for devices 1 watt and less	Maximum ACP (dBc) for devices above 1 watt
25 kHz	−55 dBc	−60 dBc
50 kHz	−70 dBc	−70 dBc
75 kHz	−70 dBc	−70 dBc

(2) In any case, no requirement in excess of −36 dBm shall apply.

(c)(1) Maximum adjacent power levels for frequencies in the 809–824/854–869 MHz band:

Frequency offset	Maximum ACP (dBc) for devices less than 15 watts	Maximum ACP (dBc) for devices 15 watts and above
25 kHz	−55 dBc	−55 dBc
50 kHz	−65 dBc	−65 dBc
75 kHz	−65 dBc	−70 dBc

(2) In any case, no requirement in excess of −36 dBm shall apply.

(d) On any frequency removed from the assigned frequency by more than 75 kHz, the attenuation of any emission must be at least 43 + 10 log (P_{watts}) dB.

[77 FR 61538, Oct. 10, 2012]

Subpart J—Non-Voice and Other Specialized Operations

§ 90.231 Scope.

This subpart sets forth requirements and standards for licensing and operation of non-voice and other specialized radio uses (other than radiolocation). Such uses include secondary signaling, telemetry, radioteleprinter,

radiofacsimile, automatic vehicle monitoring (AVM), radio call box, relay, vehicular repeater, and control station operations.

§ 90.233 Base/mobile non-voice operations.

The use of A1D, A2D, F1D, F2D, G1D, or G2D emission may be authorized to base/mobile operations in accordance with the following limitations and requirements.

(a) Licensees employing non-voice communications are not relieved of their responsibility to cooperate in the shared use of land mobile radio channels. See also §§ 90.403 and 90.173(a) and (b).

(b) Authorization for non-voice emission may be granted only on frequencies subject to the coordination requirements set forth in § 90.175. Non-voice operations on frequencies not subject to these requirements are permitted only a secondary basis to voice communications.

(c) Provisions of this section do not apply to authorizations for paging, telemetry, radiolocation, automatic vehicle monitoring systems (AVM), radioteleprinter, radio call box operations, or authorizations granted pursuant to subpart T of this part.

[48 FR 2794, Feb. 3, 1983, as amended at 49 FR 48711, Dec. 14, 1984; 56 FR 19602, Apr. 29, 1991; 72 FR 35195, June 27, 2007]

§ 90.235 Secondary fixed signaling operations.

Fixed operations may, subject to the following conditions, be authorized on a secondary basis for voice, tone or impulse signaling on a licensee's mobile service frequency(ies) above 25 MHz within the area normally covered by the licensee's mobile system. Voice signaling will be permitted only in the Public Safety Pool.

(a) The bandwidth shall not exceed that authorized to the licensee for the primary operations on the frequency concerned.

(b) The output power shall not exceed 30 watts at the remote site.

(c) A1D, A2D, F1D, F2D, G1D and G2D emissions may be authorized. In the Police Radio Service, A3E, F1E, F2E, F3E, G1E, G2E, or G3E emissions may also be authorized.

(d) Except for those systems covered under paragraph (e) of this section, the maximum duration of any non-voice signaling transmission shall not exceed 2 seconds and shall not be repeated more than 3 times. Signaling transmissions may be staggered at any interval or may be continuous. In the Public Safety Pool, the maximum duration of any voice signaling transmission shall not exceed 6 seconds and shall not be repeated more than 3 times.

(e) Until December 31, 1999, for systems in the Public Safety Pool authorized prior to June 20, 1975, and Power and Petroleum licensees as defined in § 90.7 authorized prior to June 1, 1976, the maximum duration of any signaling transmission shall not exceed 6 seconds and shall not be repeated more than 5 times. For Power licensees authorized between June 1, 1976, and August 14, 1989, signaling duration shall not exceed 2 seconds and shall not be repeated more than 5 times. Such systems include existing facilities and additional facilities which may be authorized as a clear and direct expansion of existing facilities. After December 31, 1999, all signaling systems shall be required to comply with the 2 second message duration and 3 message repetition requirements.

(f) Systems employing automatic interrogation shall be limited to non-voice techniques and shall not be activated for this purpose more than 10 seconds out of any 60 second period. This 10 second timeframe includes both transmit and response times.

(g) Automatic means shall be provided to deactivate the transmitter in the event the r.f. carrier remains on for a period in excess of 3 minutes or if a transmission for the same signaling function is repeated consecutively more than five times.

(h) Fixed stations authorized pursuant to the provisions of this section are exempt from the requirements of §§ 90.137(b), 90.425, and 90.429.

(i) Base, mobile, or mobile relay stations may transmit secondary signaling transmissions to receivers at fixed locations subject to the conditions set forth in this section.

(j) Under the provisions of this section, a mobile service frequency may

not be used exclusively for secondary signaling.

(k) The use of secondary signaling will not be considered in whole or in part as a justification for authorizing additional frequencies in a licensee's land mobile radio system.

(l) Secondary fixed signaling operations conducted in accordance with the provisions of §§ 90.317(a), 90.557 and 90.637 are exempt from the foregoing provisions of this section.

[54 FR 28679, July 7, 1989, as amended at 57 FR 34693, Aug. 6, 1992; 58 FR 30996, May 28, 1993; 60 FR 50123, Sept. 28, 1995; 62 FR 18927, Apr. 17, 1997; 72 FR 35195, June 27, 2007; 72 FR 44424, Aug. 8, 2007; 79 FR 39339, July 10, 2014]

§ 90.237 Interim provisions for operation of radioteleprinter and radiofacsimile devices.

These provisions authorize and govern the use of radioteleprinter and radiofacsimile devices for base station use (other than on mobile-only or paging-only frequencies) in all radio pools and services except Radiolocation in this part.

(a) Information must be submitted with an application to establish that the minimum separation between a proposed radioteleprinter or radiofacsimile base station and the nearest co-channel base station of another licensee operating a voice system is 120 km (75 mi) for a single frequency mode of operation, or 56 km (35 mi) for two frequency mode of operation. Where this minimum mileage separation cannot be achieved, either agreement to the use of F1B, F2B, F3C, G1B, G2B or G3C emission must be received from all existing co-channel licensees using voice emission within the applicable mileage limits, or if agreement was not received, the licensee of the radioteleprinter or radiofacsimile system is responsible for eliminating any interference with preexisting voice operations. New licensees of voice operations will be expected to share equally any frequency occupied by established radioteleprinter or radiofacsimile operations.

(b) [Reserved]

(c) Transmitters certificated under this part for use of G3E or F3E emission may also be used for F1B, F2B, F3C, G1B, G2B or G3C emission for radioteleprinter or radiofacsimile, provided the keying signal is passed through the low pass audio frequency filter required for G3E or F3E emission. The transmitter must be so adjusted and operated that the instantaneous frequency deviation does not exceed the maximum value allowed for G3E or F3E.

(d) Frequencies will not be assigned exclusively for F1B, F2B, F3C, G1B, G2B or G3C emission for radioteleprinter or radiofacsimile (except where specifically provided for in the frequency limitations).

(e) The requirements in this part applicable to the use of G3E or F3E emission are also applicable to the use of F1B, F2B, F3C, G1B, G2B or G3C emission for radioteleprinter and radiofacsimile transmissions.

(f) The station identification required by § 90.425 must be given by voice or Morse code.

(g) For single sideband operations in accordance with § 90.266, transmitters certified under this part for use of J3E emission may also be used for A2B and F2B emissions for radioteleprinter transmissions. Transmitters certified under this part for use of J3E emission in accordance with §§ 90.35(c)(1)(A), 90.35(c)(1)(B), 90.35(c)(1)(C) and 90.257(a) may also be used for A1B, A2B, F1B, F2B, J2B, and A3C emissions to provide standby backup circuits for operational telecommunications circuits which have been disrupted, where so authorized in other sections of this part.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 48712, Dec. 14, 1984; 51 FR 14998, Apr. 22, 1986; 62 FR 18927, Apr. 17, 1997; 63 FR 36610, July 7, 1998; 63 FR 68965, Dec. 14, 1998; 72 FR 35195, June 27, 2007]

§ 90.238 Telemetry operations.

The use of telemetry is authorized under this part on the following frequencies.

(a) 72–76 MHz (in accordance with § 90.257 and subject to the rules governing the use of that band).

(b) 154.45625, 154.46375, 154.47125, and 154.47875 MHz (subject to the rules governing the use of those frequencies).

(c) 173.20375, 173.210, 173.2375, 173.2625, 173.2875, 173.3125, 173.3375, 173.3625, 173.390, and 173.39625 MHz (subject to

the rules governing the use of those frequencies).

(d) 216–220 and 1427–1435 MHz (as available in the Public Safety and Industrial/Business Pools and in accordance with § 90.259).

(e) In the 450–470 MHz band, telemetry operations will be authorized on a secondary basis with a transmitter output power not to exceed 2 watts on frequencies subject to § 90.20(d)(27) or § 90.35(c)(30), except that telemetry operations used by Railroad licensees may be authorized on frequency pair 452/457.9375 MHz with a transmitter output power not to exceed 8 watts.

(f) 220–222 MHz as available under subpart T of this part.

(g) 450–470 MHz band (as available for secondary fixed operations in accordance with § 90.261 and for low power operations in accordance with § 90.267).

(h) 458–468 MHz band (as available in the Public Safety Pool for bio-medical telemetry operations).

(i) For Industrial/Business frequencies which are not governed by paragraphs (a) through (h), on frequencies available for operations up to 2 watts.

[44 FR 17183, Mar. 21, 1979, as amended at 46 FR 45955, Sept. 16, 1981; 50 FR 39680, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 56 FR 19603, Apr. 29, 1991; 60 FR 37268, July 19, 1995; 61 FR 6576, Feb. 21, 1996; 62 FR 18927, Apr. 17, 1997; 68 FR 19460, Apr. 21, 2003; 78 FR 28756, May 16, 2013]

§ 90.239 [Reserved]

§ 90.241 Radio call box operations.

(a) The frequencies in the 72–76 MHz band listed in § 90.257(a)(1) may be assigned in the Public Safety Pool for operation of radio call boxes to be used by the public to request fire, police, ambulance, road service, and other emergency assistance, subject to the following conditions and limitations:

(1) Maximum transmitter power will be either 2.5 watts plate input to the final stage or 1 watt output.

(2) Antenna gain shall not exceed zero dBd (referred to a half-wave dipole) in any horizontal direction.

(3) Only vertical polarization of antennas shall be permitted.

(4) The antenna and its supporting structure must not exceed 6.1 m (20 feet) in height above the ground.

(5) Only A1D, A2D, F1D, F2D, G1D, or G2D emission shall be authorized.

(6) The transmitter frequency tolerance shall be 0.005 percent.

(7) Except for test purposes, each transmission must be limited to a maximum of two seconds and shall not be automatically repeated more than two times at spaced intervals within the following 30 seconds. Thereafter, the authorized cycle may not be reactivated for one minute.

(8) All transmitters installed after December 10, 1970, shall be furnished with an automatic means to deactivate the transmitter in the event the carrier remains on for a period in excess of three minutes. The automatic cutoff system must be designed so the transmitter can be only manually reactivated.

(9) Frequency selection must be made with regard to reception of television stations on channels 4 (66–72 MHz) and 5 (76–82 MHz) and should maintain the greatest possible frequency separation from either or both of these channels, if they are assigned in the area.

(b) [Reserved]

(c) Frequencies in the 450–470 MHz band which are designated as available for assignment to central control stations and radio call box installations in § 90.20(c) or § 90.20(d)(58) may be assigned in the Public Safety Pool for highway call box systems subject to the following requirements:

(1) Call box transmitters shall be installed only on limited access highways and may communicate only with central control stations of the licensee.

(2) Maximum transmitter power for call boxes will be either 2.5 watts input to the final amplifier stage or one watt output. The central control station shall not exceed 25 watts effective radiated power (ERP).

(3) The height of a call box antenna may not exceed 6.1 meters (20 feet) above the ground, the natural formation, or the existing man-made structure (other than an antenna supporting structure) on which it is mounted. A central station transmitting antenna, together with its supporting structure shall not exceed 15 m. (50 ft.) above the ground surface.

(4) Only F1D, F2D, F3E, G1D, G2D, or G3E, emission may be authorized for

nonvoice signaling, radiotelephony, and multiplexed voice and nonvoice use. The provisions in this part applicable to the use of F3E or G3E emission are also applicable to the use of F1D, F2D, G1D or G2D emission for call box transmitters.

(5) The station identification required by § 90.425 shall be by voice and may be transmitted for the system from the central control station. Means shall be provided at each central control station location to automatically indicate the call box unit identifier when a call box unit is activated.

(6) Call box installations must be so designed that their unit identifier is automatically transmitted when the handset is lifted.

(7) Each application for a call box system must contain information on the nonvoice transmitting equipment, including the character structure, bit rate, modulating tone frequencies, identification codes, and the method of modulation (i.e., frequency shift, tone shift, or tone phase shift).

(8) Call box installations may be used secondarily for the transmission of information from roadside sensors. Central control station transmitters may be used secondarily to interrogate call box roadside sensors and for the transmission of signals to activate roadside signs.

(9) Each call box transmitter must be provided with a timer which will automatically deactivate the transmitter after 2 minutes unless the central control station operator reactivates the timer cycle.

(10) The central control station must include facilities that permit direct control of any call box in the system.

(11) Call box transmitter frequency tolerance shall be 0.001 percent.

(12) Transmitters certificated under this part for use of F3E or G3E emission may be used for F1D, F2B, G2B or G2D emission provided that the audio tones or digital data bits are passed through the low pass audio filter required to be provided in the transmitter for F3E or G3E emission. The transmitter must be adjusted and operated so that the instantaneous frequency deviation does not exceed the maximum value allowed for F3E or G3E emission.

(d) In addition to the frequencies available pursuant to § 90.20(c) the frequencies set forth in § 90.20(d)(58) may be used for central control station and call box installations in areas where such frequencies are available for fixed system use subject to the requirements and limitations of that section and subject to the provisions of paragraphs (c) (1), (4), (5), (6), (7), (8), (9), (10), and (12) of this section.

[43 FR 54791, Nov. 22, 1978; 44 FR 32219, June 5, 1979; 49 FR 48712, Dec. 14, 1984; 50 FR 39680, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 54 FR 38681, Sept. 20, 1989; 54 FR 45891, Oct. 31, 1989; 58 FR 44957, Aug. 25, 1993; 62 FR 18927, Apr. 17, 1997; 63 FR 36610, July 7, 1998; 63 FR 68965, Dec. 14, 1998; 72 FR 35195, June 27, 2007; 78 FR 25175, Apr. 29, 2013]

§ 90.242 Travelers' information stations.

(a) The frequencies 530 through 1700 kHz in 10 kHz increments may be assigned to the Public Safety Pool for the operation of Travelers' Information Stations subject to the following conditions and limitations.

(1) [Reserved]

(2) Each application for a station or system shall be accompanied by:

(i) A statement certifying that the transmitting site of the Travelers' Information Station will be located at least 15 km (9.3 miles) measured orthogonally outside the measured 0.5 mV/m daytime contour (0.1 mV/m for Class A stations) of any AM broadcast station operating on a first adjacent channel or at least 130 km (80.6 miles) outside the measured 0.5 mV/m daytime contour (0.1 mV/m for Class A stations) of any AM broadcast station operating on the same channel, or, if nighttime operation is proposed, outside the theoretical 0.5 mV/m-50% nighttime skywave contour of a U.S. Class A station. If the measured contour is not available, then the calculated 0.5 mV/m field strength contour shall be acceptable. These contours are available at the concerned AM broadcast station and FCC offices in Washington, DC.

(ii) In consideration of possible cross-modulation and inter-modulation interference effects which may result from the operation of a Travelers' Information Station in the vicinity of an AM broadcast station on the second or

third adjacent channel, the applicant shall certify that it has considered these possible effects and, to the best of its knowledge, does not foresee interference occurring to broadcast stations operating on second or third adjacent channels.

(iii) A map showing the geographical location of each transmitter site and an estimate of the signal strength at the contour of the desired coverage area. For a cable system, the contour to be shown is the estimated field strength at 60 meters (197 feet) from any point on the cable. For a conventional radiating antenna, the estimated field strength contour at 1.5 km (0.93 mile) shall be shown. A contour map comprised of actual on-the-air measurements shall be submitted to the Commission within 60 days after station authorization or completion of station construction, whichever occurs later. A sufficient number of points shall be chosen at the specified distances (extrapolated measurements are acceptable) to adequately show compliance with the field strength limits.

(iv) For each transmitter site, the transmitter's output power, the type of antenna utilized, its length (for a cable system), its height above ground, distance from transmitter to the antenna, and the elevation above sea level at the transmitting site.

(3) Travelers' Information Stations will be authorized on a primary basis on 530 kHz and on a secondary basis to stations authorized on a primary basis in the band 535–1705 kHz.

(4) A Travelers' Information Station authorization may be suspended, modified, or withdrawn by the Commission without prior notice or right to hearing if necessary to resolve interference conflicts, to implement agreements with foreign governments, or in other circumstances warranting such action.

(5) The transmitting site of each Travelers' Information Station shall be restricted to the immediate vicinity of the following specified areas: Air, train, and bus transportation terminals, public parks and historical sites, bridges, tunnels, and any intersection of a Federal Interstate Highway with any other Interstate, Federal, State, or local highway.

(6) A Travelers' Information Station shall normally be authorized to use a single transmitter. However, a system of stations, with each station in the system employing a separate transmitter, may be authorized for a specific area provided sufficient need is demonstrated by the applicant.

(7) Travelers' Information Stations shall transmit only noncommercial voice information pertaining to traffic and road conditions, traffic hazard and travel advisories, directions, availability of lodging, rest stops and service stations, and descriptions of local points of interest. It is not permissible to identify the commercial name of any business establishment whose service may be available within or outside the coverage area of a Travelers' Information Station. However, to facilitateannouncements concerning departures/arrivals and parking areas at air, train, and bus terminals, the trade name identification of carriers is permitted. Travelers' Information Stations may also transmit information in accordance with the provisions of §§ 90.405 and 90.407.

(b) *Technical standards.* (1) The use of 6K00A3E emission will be authorized, however N0N emission may be used for purposes of receiver quieting, but only for a system of stations employing ''leaky'' cable antennas.

(2) A frequency tolerance of 100 Hz shall be maintained.

(3) For a station employing a cable antenna, the following restrictions apply:

(i) The length of the cable antenna shall not exceed 3.0 km (1.9 miles).

(ii) Transmitter RF output power shall not exceed 50 watts and shall be adjustable downward to enable the user to comply with the specified field strength limit.

(iii) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 60 meters (197 feet) from any part of the station.

(4) For a station employing a conventional radiating antenna(s) (ex. vertical monopole, directional array) the following restrictions apply:

(i) The antenna height above ground level shall not exceed 15.0 meters (49.2 feet).

(ii) Only vertical polarization of antennas shall be permitted.

(iii) Transmitter RF output power shall not exceed 10 watts to enable the user to comply with the specified field strength limit.

(iv) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 1.50 km (0.93 miles) from the transmitting antenna system.

(5) For co-channel stations operating under different licenses, the following minimum separation distances shall apply:

(i) 0.50 km (0.31 miles) for the case when both stations are using cable antennas.

(ii) 7.50 km (4.66 miles) for the case when one station is using a conventional antenna and the other is using a cable antenna.

(iii) 15.0 km (9.3 miles) for the case when both stations are using conventional antennas.

(6) For a system of co-channel transmitters operating under a single authorization utilizing either cable or conventional antennas, or both, no minimum separation distance is required.

(7) An applicant desiring to locate a station that does not comply with the separation requirements of this section shall coordinate with the affected station.

(8) Each transmitter in a Travelers Information Station shall be equipped with an audio low-pass filter. Such filter shall be installed between the modulation limiter and the modulated stage. At audio frequencies between 3 kHz and 20 kHz this filter shall have an attenuation greater than the attenuation at 1 kHz by at least:

$$60 \log_{10} (f/3) \text{ decibels.}$$

where ''f'' is the audio frequency in kHz. At audio frequencies above 20 kHz, the attenuation shall be at least 50 decibels greater than the attenuation at 1 kHz.

[43 FR 54791, Nov. 22, 1978; 44 FR 67118, Nov. 23, 1979; 49 FR 48712, Dec. 14, 1984, as amended at 54 FR 39740, Sept. 28, 1989; 56 FR 64874, Dec. 12, 1991; 62 FR 18928, Apr. 17, 1997; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 72 FR 35195, June 27, 2007; 73 FR 25497, May 6, 2008; 78 FR 50345, Aug. 19, 2013]

§ 90.243 Mobile relay stations.

(a) Mobile relay operations will be authorized on frequencies below 512 MHz, except in the Radiolocation Service.

(b) Special provisions for mobile relay operations:

(1) In the Public Safety Pool, systems operating on any of the public safety frequencies listed in § 90.20(c) are permitted to be cross-banded for mobile stations operations with mobile relay stations where such stations are authorized.

(2) [Reserved]

(3) In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), mobile relay operation shall be on a secondary basis to other co-channel operations.

(4) Except where specifically precluded, a mobile relay station may be authorized to operate on any frequency available for assignment to base stations.

(5) A mobile station associated with mobile relay station(s) may not be authorized to operate on a frequency below 25 MHz.

(c) Technical requirements for mobile relay stations.

(1) Each new mobile relay station with an output power of more than one watt, and authorized after January 1, 1972, that is activated by signals below 50 MHz shall deactivate the station upon cessation of reception of the activating continuous coded tone signal. Licensees may utilize a combination of digital selection and continuous coded tone control where required to insure selection of only the desired mobile relay station.

(2) Mobile relay stations controlled by signals above 50 MHz or authorized prior to January 1, 1972, to operate

below 50 MHz are not required to incorporate coded signal or tone control devices unless the transmitters are consistently activated by undesired signals and cause harmful interference to other licensees. If activation by undesired signals causes harmful interference, the Commission will require the installation of tone control equipment within 90 days of a notice to the licensee.

(3) Except in the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), each new mobile-relay station authorized after January 1, 1972, shall be equipped for automatic deactivation of the transmitter within 5 seconds after the signals controlling the station cease.

(4) Except in the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), each new mobile-relay station authorized after January 1, 1972, during periods that is not controlled from a manned fixed control point; shall have an automatic time delay or clock device that will deactivate the station not more than 3 minutes after its activation by a mobile unit.

(5) In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), each mobile relay station, regardless of the frequency or frequencies of the signal by which it is activated shall be so designated and installed that it will be deactivated automatically when its associated receiver or receivers are not receiving a signal on the frequency or frequencies which normally activate it.

(6) Multiple mobile relay station radio systems shall use wireline or radio stations on fixed frequencies for any necessary interconnect circuits between the mobile relay stations.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 40177, Oct. 15, 1984; 50 FR 13606, Apr. 5, 1985; 50 FR 39680, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 54 FR 39740, Sept. 28, 1989; 56 FR 19603, Apr. 29, 1991; 56 FR 32517, July 17, 1991; 60 FR 37268, July 19, 1995; 61 FR 6576, Feb. 21, 1996; 62 FR 18928, Apr. 17, 1997; 74 FR 23803, May 21, 2009]

§ 90.245 Fixed relay stations.

Except where specifically provided for, fixed relay stations shall be authorized to operate only on frequencies available for use by operational fixed stations.

§ 90.247 Mobile repeater stations.

A mobile station authorized to operate on a mobile service frequency above 25 MHz may be used as a mobile repeater to extend the communications range of hand-carried units subject to the following:

(a) Mobile repeaters and/or associated hand-carried transmitters may be assigned separate base/mobile frequencies for this use in addition to the number of frequencies normally assignable to the licensee.

(b)–(c) [Reserved]

(d) In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), use of mobile repeaters is on a secondary basis to the stations of any other licensee. Hand carried units used in connection with mobile repeaters on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3) may operate only above 150 MHz and are limited to a maximum output power of six watts. The frequency and maximum power shall be specified in the station authorization.

(e) In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), the output power of a mobile repeater station, when transmitting as a repeater station on the frequency used for communication with its associated pack-carried or hand-carried units, shall not exceed 6 watts except when the same frequency is also used by the same station for direct communication with vehicular mobile units or with one or more base stations.

(f) When automatically retransmitting messages originated by or destined for hand-carried units, each mobile station shall activate the mobile transmitter only with a continuous access signal, the absence of which will de-activate the mobile transmitter. The continuous access signal is not required

when the mobile unit is equipped with a switch that activates the automatic mode of the mobile unit and an automatic time-delay device that de-activates the transmitter after any uninterrupted transmission period in excess of 3 minutes. For the purposes of this rule section the continuous access signal can be achieved by use of digital or analog methods.

[43 FR 54791, Nov. 22, 1978, as amended at 62 FR 18928, Apr. 17, 1997; 75 FR 19284, Apr. 14, 2019]

§ 90.248 Wildlife and ocean buoy tracking.

(a) The frequency bands 40.66–40.70 MHz and 216–220 MHz may be used for the tracking of, and the telemetry of scientific data from, ocean buoys and animal wildlife.

(b) Transmitters operating under the provisions of this section are not subject to the technical standards contained in §§ 90.205–90.217. In lieu thereof, the transmitters shall comply with the provisions in this section.

(c) Classes of emission are limited to N0N, A1A, A2A, A2B, F1B, J2B, F2A, F2B, and/or F8E.

(d) The authorized bandwidth shall not exceed 1 kHz.

(e) *Frequency stability.* (1) For transmitters operating in the 40.66–40.70 MHz frequency band, the frequency stability shall be sufficient to ensure that, at the carrier frequency employed, the sum of the authorized bandwidth plus the bandwidth required for frequency stability are confined within this band.

(2) In the 216–220 MHz frequency band, transmitters shall employ a minimum frequency stability of 0.005 percent (50 parts per million). The carrier frequency shall be selected to ensure that the sum of the authorized bandwidth plus the bandwidth required for frequency stability are confined within this band.

(3) The frequency stability standards shall be met over a temperature range of −30° to +50° centigrade at normal supply voltage and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of +20 °C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(f) The maximum peak transmitter output (carrier) power shall not exceed 1 milliwatt for airborne wildlife applications, 10 milliwatts for terrestrial wildlife applications or 100 milliwatts for ocean buoys.

(g) Emissions appearing outside of the authorized bandwidth shall be attenuated below the carrier power by at least 26 dB, following the procedures specified in § 90.210(m).

[63 FR 64208, Nov. 19, 1998]

§ 90.249 Control stations.

Control stations associated with land mobile stations under this part shall be authorized to operate subject to the following:

(a) *Frequencies for control stations.* (1) Control stations may be authorized to operate on frequencies available for use by operational fixed stations.

(2) A control station associated with mobile relay station(s) may, at the option of the applicant, be assigned the frequency of the associated mobile station. In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), such a control station may be assigned any mobile service station frequency available for assignment to mobile stations. Such operation is on a secondary basis to use of the frequency for regular mobile service communications.

(3) Control and fixed stations in the Public Safety Pool may be authorized on a temporary basis to operate on frequencies available for base and mobile stations between 152 and 450 MHz, where there is an adequate showing that such operations cannot be conducted on frequencies allocated for assignment to operational fixed stations. Such operation will not be authorized initially or renewed for periods in excess of one year. Any such authorization shall be subject to immediate termination if harmful interference is caused to stations in the mobile service, or if the particular frequency is required for mobile service operations in the area concerned.

(b) [Reserved]

(c) A base station which is used intermittently as a control station for one or more associated mobile relay stations of the same licensee shall operate

only on the mobile service frequency assigned to the associated mobile relay station when operating as a base station and on the mobile service frequency assigned to the associated mobile station when operating as a control station. Authority for such dual classification and use must be shown on the station authorization. When operating as a control station, the licensee must meet all control station requirements. In the Industrial/Business Pool, on frequencies designated with an ''LR'' in the coordinator column of the frequency table in § 90.35(b)(3), base stations used intermittently as control stations shall operate only on a mobile service frequency which is available for assignment to base stations.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 36376, Sept. 17, 1984; 62 FR 18928, Apr. 17, 1997]

§ 90.250 Meteor burst communications.

Meteor burst communications may be authorized for the use of private radio stations subject to the following provisions:

(a) Station operation is limited to the State of Alaska only.

(b) The frequency 44.20 MHz may be used for base station operation and 45.90 MHz for remote station operation on a primary basis. The frequencies 42.40 and 44.10 MHz may be used by base and remote stations, respectively, on a secondary basis to common carrier stations utilizing meteor burst communications. Users shall cooperate among themselves to the extent practicable to promote compatible operation.

(c) The maximum transmitter output power shall not exceed 2000 watts for base stations and 500 watts for remote stations.

(d) Co-channel base stations of different licensees shall be located at least 241 km (150 miles) apart. A remote station and a base station of different licensees shall be located at least 241 km (150 miles) apart if the remote units of the different licensees operate on the same frequency. Waiver of this requirement may be granted if affected users agree to a cooperative sharing arrangement.

(e) The authorized emission designator to be used in F1E, F7W, G1E or G7W to allow for Phase Shift Keying (PSK) or Frequency Shift Keying (FSK).

(f) The maximum authorized bandwidth is 20 kHz.

(g) Station identification in accordance with § 90.425(a) or (b) shall only be required for the base station.

(h) Stations may be required to comply with additional conditions of operation as necessary on a case-by-case basis as specified in the authorization.

(i) Stations employing meteor burst communications must not cause interference to other stations operating in accordance with the allocation table. New authorizations will be issued subject to the Commission's experimental licensing rules in part 5 of this chapter. Prior to expiration of the experimental authorization, application Form 601 should be filed for issuance of a permanent authorization.

[48 FR 34043, July 27, 1983, as amended at 49 FR 48712, Dec. 14, 1984; 58 FR 44957, Aug. 25, 1993; 72 FR 35196, June 27, 2007; 78 FR 25175, Apr. 29, 2013]

Subpart K—Standards for Special Frequencies or Frequency Bands

§ 90.251 Scope.

This subpart sets forth special requirements applicable to the use of certain frequencies or frequency bands.

[54 FR 39740, Sept. 28, 1989]

§ 90.253 Use of frequency 5167.5 kHz.

The frequency 5167.5 kHz may be used by any station authorized under this part to communicate with any other station in the State of Alaska for emergency communications. The maximum power permitted is 150 watts peak envelope power (PEP). All stations operating on this frequency must be located in or within 50 nautical miles (92.6 km) of the State of Alaska. This frequency may also be used by stations authorized in the Alaska-private fixed service for calling and listening, but only for establishing communication before switching to another frequency.

[49 FR 32201, Aug. 13, 1984]

§ 90.255 [Reserved]

§ 90.257 Assignment and use of frequencies in the band 72–76 MHz.

(a) The following criteria shall govern the authorization and use of frequencies within the band 72–76 MHz by fixed stations. (For call box operations see § 90.241).

(1) The following frequencies in the band 72–76 MHz may be used for fixed operations:

MHz	
72.02	72.80
72.04	72.82
72.06	72.84
72.08	72.86
72.10	72.88
72.12	72.90
72.14	72.92
72.16	72.94
72.18	72.96
72.20	72.98
72.22	75.42
72.24	75.46
72.26	75.50
72.28	75.54
72.30	75.58
72.32	75.62
72.34	75.64
72.36	75.66
72.38	75.68
72.40	75.70
72.42	75.72
72.46	75.74
72.50	75.76
72.54	75.78
72.58	75.80
72.62	75.82
72.64	75.84
72.66	75.86
72.68	75.88
72.70	75.90
72.72	75.92
72.74	75.94
72.76	75.96
72.78	75.98

(2) All authorizations are subject to the condition that no harmful interference will be caused to television reception on Channels 4 and 5.

(3) The applicant must agree to eliminate any harmful interference caused by his operation to TV reception on either Channel 4 or 5 that might develop by whatever means are necessary. Such action must be taken within 90 days of notification by the Commission. If such interference is not eliminated within the 90-day period, operation of the fixed station will be discontinued.

(4) Vertical polarization must be used.

(5) Whenever it is proposed to locate a 72–76 MHz fixed station less than 128 km (80 mi.) but more than 16 km (10 mi.) from the site of a TV transmitter operating on either channel 4 or 5, or from the post office of a community in which such channels are assigned but not in operation, the fixed station shall be authorized only if there are fewer than 100 family dwelling units (as defined by the U.S. Bureau of the Census), excluding units 112 or more km (70 mi.) distant from the TV antenna site, located within a circle centered at the location of the proposed fixed station. The radius shall be determined by use of the following chart entitled, ''Chart for Determining Radius From Fixed Station in 72–76 MHz Band to Interference Contour Along Which 10 Percent of Service From Adjacent Channel Television Station Would Be Destroyed.'' Two charts are available, one for Channel 4, and one for Channel 5. The Commission may, however, in a particular case, authorize the location of a fixed station within a circle containing 100 or more family dwelling units upon a showing that:

(i) The proposed site is the only suitable location.

(ii) It is not feasible, technically or otherwise, to use other available frequencies.

(iii) The applicant has a plan to control any interference that might develop to TV reception from his operations.

(iv) The applicant is financially able and agrees to make such adjustments in the TV receivers affected as may be necessary to eliminate any interference caused by his operations.

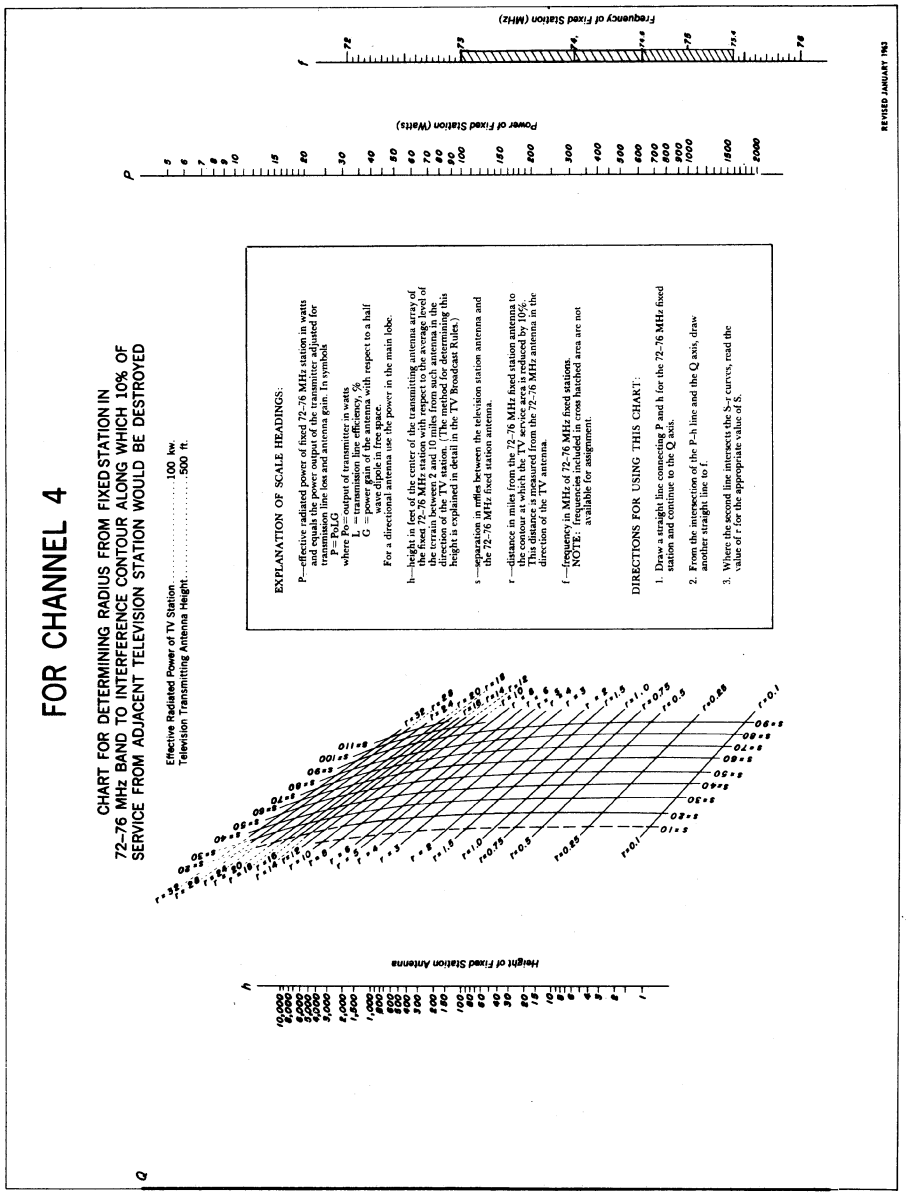
(v) All applications seeking authority to operate with a separation of less than 16 km (10 mi.) will be returned without action.

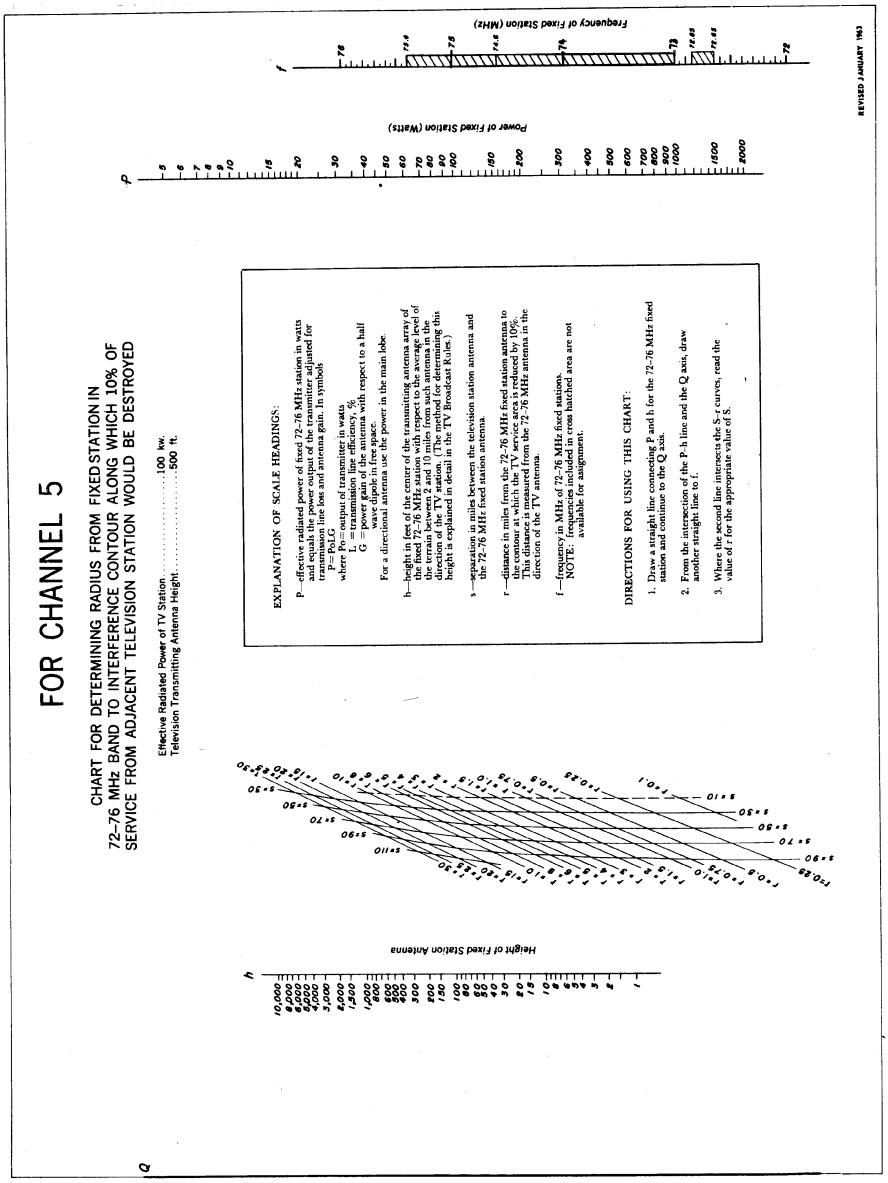
(b) The following criteria governs the authorization and use of frequencies in the 72–76 MHz band by mobile stations in the Industrial/Business Pool.

(1) Mobile operation on frequencies in the 72–76 MHz band is subject to the condition that no interference is caused to the reception of television stations operating on Channel 4 or 5. Interference will be considered to occur whenever reception of a regularly used television signal is impaired by signals radiated by stations operating under these rules in the 72 to 76 MHz band regardless of the quality of such reception or the strength of the signal used. In order to minimize the hazard of such interference, it shall be the duty of the licensee to determine whether interference is being caused to television reception, wherever television receivers other than those under the control of the licensee, are located within 31 m. (100 ft.) of any point where the stations licensed under these rules may be operated. In any case, it shall be the responsibility of the licensee to correct, at its own expense, any such interference and if the interference cannot be eliminated by the application of suitable techniques, the operation of the offending transmitter shall be suspended. If the complainant refuses to permit the licensee to apply remedial techniques which demonstrably will eliminate the interference without impairment of the original reception, the licensee is absolved of further responsibility.

(2) The maximum transmitter output power that will be authorized is 1 watt; and each station authorized will be classified and licensed as a mobile station. Any units of such a station, however, may be used to provide the operational functions of a base or fixed station. The antennas of transmitters operating on these frequencies must be directly mounted or installed upon the transmitting unit: Except that when permanently installed aboard a vehicle, antenna and transmitter may be separated as required for convenience in mounting. Horizontal polarization will not be allowed; and the gain of antennas employed shall not exceed that of a halfwave dipole. The maximum bandwidth that will be authorized is 20 kHz. Tone control transmissions are permitted.

(c) Radio remote control of models is permitted on frequencies 10 kHz removed from these frequencies authorized for fixed and mobile operations in the 72–76 MHz band. Remote control operations are secondary to operation of fixed and mobile stations as provided for in this section.


FOR CHANNEL 4
CHART FOR DETERMINING RADIUS FROM FIXED STATION IN 72–76 MHz BAND TO INTERFERENCE CONTOUR ALONG WHICH 10% OF SERVICE FROM ADJACENT TELEVISION STATION WOULD BE DESTROYED
Effective Radiated Power of TV Station.....100 kw.
Television Transmitting Antenna Height.....500 ft.
EXPLANATION OF SCALE HEADINGS:
P—effective radiated power of fixed 72–76 MHz station in watts and equals the power output of the transmitter adjusted for transmission line loss and antenna gain. In symbols
P = PoLG
where: Po = output of transmitter in watts
L = transmission line efficiency, %
G = power gain of the antenna with respect to a half wave dipole in free space.
For a directional antenna use the power in the main lobe.
h—height in feet of the center of the transmitting antenna array of the fixed 72–76 MHz station with respect to the average level of the terrain between 2 and 10 miles from such antenna in the direction of the TV station. (The method for determining this height is explained in detail in the TV Broadcast Rules.)
s—separation in miles between the television station antenna and the 72–76 MHz fixed station antenna.
r—distance in miles from the 72–76 MHz fixed station antenna to the contour at which the TV service area is reduced by 10%. This distance is measured from the 72–76 MHz antenna in the direction of the TV antenna.
f—frequency in MHz of 72–76 MHz fixed stations.
NOTE: frequencies included in cross hatched area are not available for assignment.
DIRECTIONS FOR USING THIS CHART:
1. Draw a straight line connecting P and h for the 72–76 MHz fixed station and continue to the Q axis.
2. From the intersection of the P–h line and the Q axis, draw another straight line to f.
3. Where the second line intersects the S-r curves, read the value of r for the appropriate value of S.
Q
h
Height of Fixed Station Antenna
P
Power of Fixed Station (Watts)
f
Frequency of Fixed Station (MHz)
REVISED JANUARY 1963



[43 FR 54791, Nov. 22, 1978; 44 FR 32219, June 5, 1979, as amended at 47 FR 51879, Nov. 18, 1982; 49 FR 41249, Oct. 22, 1984; 54 FR 38681, Sept. 20, 1989; 58 FR 30129, May 26, 1993; 60 FR 37268, July 19, 1995; 62 FR 18928, Apr. 17, 1997; 72 FR 35196, June 27, 2007]

§ 90.259 Assignment and use of frequencies in the bands 216–220 MHz and 1427–1432 MHz.

(a) *216–220 MHz band.* (1) Frequencies in the 216–220 MHz band may be assigned to applicants that establish eligibility in the Industrial/Business Pool.

(2) All operation is secondary to the fixed and mobile services, including the Low Power Radio Service.

(3) In the 216–217 MHz band, no new assignments will be made after January 1, 2002.

(4) In the 217–220 MHz band, the maximum transmitter output power is 2 watts. The maximum antenna height above average terrain (HAAT) is 152 m (500 feet).

(5) In the 217–220 MHz band, base, mobile, and operational fixed operations are permitted.

(6) Wide area operations will not be authorized. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographical center (latitude and longitude).

(7) Frequencies will be assigned with a 6.25 kHz, 12.5 kHz, 25 kHz or 50 kHz channel bandwidth. Frequencies may be assigned with a channel bandwidth exceeding 50 kHz only upon a showing of adequate justification.

(8) Assignable 6.25 kHz channels will occur in increments of 6.25 kHz from 217.00625 MHz to 219.99375 MHz. Assignable 12.5 kHz channels will occur in increments of 12.5 kHz from 217.0125 MHz to 219.9875 MHz. Assignable 25 kHz channels will occur in increments of 25 kHz from 217.025 MHz to 219.975 MHz. Assignable 50 kHz channels will occur in increments of 50 kHz from 217.025 MHz to 219.975 MHz.

(b) *1427–1432 MHz band.* (1) Frequencies in the 1427–1432 MHz band may be assigned to applicants that establish eligibility in the Public Safety Pool or the Industrial/Business Pool.

(2) All operations in the 1427–1429.5 MHz band are secondary to the Wireless Medical Telemetry Service except in the locations specified in paragraph (b)(4) of this section. At the locations specified in paragraph (b)(4) of this section, all operations are secondary to the Wireless Medical Telemetry Service in the 1429–1431.5 MHz band.

(3) All operations in the 1429.5–1432 MHz band are primary in status except in the locations specified in paragraph (b)(4) of this section. At the locations specified in paragraph (b)(4) of this section, all operations are primary in status in the 1427–1429 MHz and 1431.5–1432 MHz bands.

(4) *Locations:* (i) Pittsburgh, Pennsylvania—Counties of Westmoreland, Washington, Beaver, Allegheny and Butler;

(ii) Washington, DC metropolitan area—Counties of Montgomery, Prince George's and Charles in Maryland; Counties of Arlington, Prince William, Fauquier, Loudon, and Fairfax, and Cities of Alexandria, Falls Church, Fairfax, Manassas and Manassas Park in Virginia; and District of Columbia;

(iii) Richmond/Norfolk, Virginia—Counties of Charles City, Chesterfield, Dinwiddie, Goochland, Hanover, Henrico, Isle of Wight, James City, New Kent, Powhatan, Prince George, Southhampton, Surrey, Sussex, and York; Cities of Chesapeake, Colonial Heights, Franklin, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach, and Williamsburg;

(iv) Austin/Georgetown, Texas—Counties of Williamson and Travis;

(v) Battle Creek, Michigan—County of Calhoun;

(vi) Detroit, Michigan—Counties of Oakland, Wayne, Washtenaw, Macomb and Livingston;

(vii) Spokane, Washington—Counties of Spokane, WA and Kootenai, ID.

(5) All operations in the 1429.5–1432 MHz band authorized prior to April 12, 2002 are on a secondary basis.

(6) For secondary operations only fixed stations are permitted. At the locations specified in (b)(4) of this section, secondary operations are performed in the 1429–1431.5 MHz band. For all other locations, secondary operations are performed in the 1427–1429.5 MHz band. The maximum power is 1 watt EIRP.

(7) For primary operations base, mobile, operational fixed and temporary fixed operations are permitted.

(i) At the locations specified in paragraph (b)(4) of this section, primary operations are performed in the 1427–1429

MHz and 1431.5–1432 MHz bands. The maximum ERP limitations are as follows:

Operation	Frequency range (MHz)			
	1427–1428	1428–1428.5	1428.5–1429	1431.5–1432
Fixed (watts)	61.1	6.11	0.611	0.611
Mobile (watts)	0.611	0.611	0.015	0.015
Temporary fixed (watts)	0.611	0.611	0.611	0.611

(ii) For all other locations, primary operations are performed in the 1429.5–1432 MHz band. The maximum ERP limitations are as follows:

Operation	Frequency range (MHz)			
	1429.5–1430	1430–1430.5	1430.5–1431.5	1431.5–1432
Fixed (watts)	0.611	0.611	6.11	61.1
Mobile (watts)	0.015	0.611	0.611	0.611
Temporary fixed (watts)	0.611	0.611	0.611	0.611

(8) Wide area operations will not be authorized. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographical center (latitude and longitude).

(9) Assignable frequencies occur in increments of 12.5 kHz from 1427.00625 MHz to 1431.99375 MHz.

(10) Licensees, however, may combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing of adequate justification.

(11) For any operation in the 1427–1432 MHz band, the predicted or measured field strength—in the WMTS primary band—at the location of any registered WMTS healthcare facility shall not exceed 150 uV/m. For the locations specified in (b)(4) of this section, WMTS is primary in the 1429–1431.5 MHz band. For all other locations, WMTS is primary in the 1427–1429.5 MHz band.

(c) *Authorized uses*. (1) Use of these bands is limited to telemetering purposes.

(2) Base stations authorized in these bands shall be used to perform telecommand functions with associated mobile telemetering stations. Base stations may also command actions by the vehicle itself, but will not be authorized solely to perform this function.

(3) Except for the transmissions that are permitted under § 90.248(f) of this chapter, airborne use is prohibited.

[67 FR 41860, June 20, 2002, as amended at 69 FR 39867, July 1, 2004; 72 FR 35196, June 27, 2007; 75 FR 19284, Apr. 14, 2010]

§ 90.261 Assignment and use of the frequencies in the band 450–470 MHz for fixed operations.

(a) Frequencies in the 450–470 MHz band as listed in §§ 90.20(c)(3) and 90.35(b)(3) may be assigned to all eligibles for fixed use on a secondary basis to land mobile operations.

(b) Fixed stations located 140 km (87 mi) or more from the center of any urbanized area of 600,000 or more population are limited to a transmitter output power of 75 watts. Fixed stations less than 140 km (87 mi) from the centers of these areas are limited to a transmitter output power of 20 watts. Urbanized areas of 600,000 or more population are defined in the U.S. Census of Population 1970, Vol. 1, Table 20, pages 1–74. The centers of the urbanized areas are determined from the Appendix, page 226, of the U.S. Department of Commerce publication ''Airline Distance Between Cities in the United States.''

(c) All fixed systems are limited to one frequency pair with 5 MHz spacing and must employ directional antennas with a front-to-back ratio of 15dB, except that omnidirectional antennas

having unity gain may be employed by stations communicating with a minimum of three receiving locations encompassed in a sector of at least 160° in azimuth. Stations authorized for secondary fixed operations prior to July 13, 1992, may continue to operate under the conditions of their initial authorization.

(d)–(e) [Reserved]

(f) Secondary fixed operations pursuant to paragraph (a) of this section will not be authorized on the following frequencies or on frequencies subject to § 90.267:

Frequencies (MHz)

451.800/456.800	454.000/459.000
451.80625/456.80625	454.00625/459.00625
451.8125/456.8125	454.0125/459.0125
451.81875/456.81875	454.01875/459.01875
452.525	462.950/467.950
452.53125	462.95625/467.95625
452.5375	462.9625/467.9625
452.54375	462.96875/467.96875
452.550	462.975/467.975
452.55625	462.98125/467.98125
452.5625	462.9875/467.9875
452.56875	462.99375/467.99375
452.575	463.000/468.000
452.58125	463.00625/468.00625
452.5875	463.0125/468.0125
452.59375	463.01875/468.01875
452.600	463.025/468.025
452.60625	463.03125/468.03125
452.6125	463.0375/468.0375
452.61875	463.04375/468.04375
452.925/457.925	463.050/468.050
452.93125/457.93125	463.05625/468.05625
452.9375/457.9375	463.0625/468.0625
452.94375/457.94375	463.06875/468.06875
452.950/457.950	463.075/468.075
452.95625/457.95625	463.08125/468.08125
452.9625/457.9625	463.0875/468.0875
452.96875/457.96875	463.09375/468.09375
453.025/458.025	463.100/468.100
453.03125/458.03125	463.10625/468.10625
453.0375/458.0375	463.1125/468.1125
453.04375/458.04375	463.11875/468.11875
453.075/458.075	463.125/468.125
453.08125/458.08125	463.13125/468.13125
453.0875/458.0875	463.1375/468.1375
453.09375/458.09375	463.14375/468.14375
453.125/458.125	463.150/468.150
453.13125/458.13125	463.15625/468.15625
453.1375/458.1375	463.1625/468.1625
453.14375/458.14375	463.16875/468.16875
453.175/458.175	463.175/468.175
453.18125/458.18125	463.18125/468.18125
453.1875/458.1875	463.1875/468.1875
453.19375/458.19375	463.19375/468.19375

[57 FR 24992, June 12, 1992, as amended at 58 FR 33212, June 16, 1993; 60 FR 37268, July 19, 1995; 62 FR 18928, Apr. 17, 1997; 68 FR 19461, Apr. 21, 2003; 72 FR 35196, June 27, 2007]

§ 90.263 Substitution of frequencies below 25 MHz.

Frequencies below 25 MHz when shown in the radio pool frequency listings under this part will be assigned to base or mobile stations only upon a satisfactory showing that, from a safety of life standpoint, frequencies above 25 MHz will not meet the operational requirements of the applicant. These frequencies are available for assignment in many areas; however, in individual cases such assignment may be impracticable due to conflicting frequency use authorized to stations in other services by this and other countries. In such cases, a substitute frequency, if found available, may be assigned from the following bands: 1705–1750 kHz, 2107–2170 kHz, 2194–2495 kHz, 2506–2850 kHz, 3155–3400 kHz, or 4438–4650 kHz. Since such assignments are in certain instances subject to additional technical and operation limitations, it is necessary that each application also include precise information concerning transmitter output power, type and directional characteristics, if any, of the antenna, and the minimum necessary hours of operation. (This section is not applicable to the Radiolocation Service, subpart F of this part.)

[72 FR 35196, June 27, 2007]

§ 90.264 Disaster communications between 2 and 10 MHz.

(a) The use of any particular frequency between 2 and 10 MHz is limited to those frequencies falling within the bands allocated to the fixed and land mobile services as indicated in § 2.106 of the Commission's Rules and Regulations.

(b) Only in the following circumstances will authority be extended to stations to operate on the frequencies between 2 and 10 MHz:

(1) To provide communications circuits in emergency and/or disaster situations, where safety of life and property are concerned;

(2) To provide standby and/or backup communications circuits to regular domestic communications circuits which

have been disrupted by disasters and/or emergencies.

(c) The FCC will not accept responsibility for protection of the circuits from harmful interference caused by foreign operations.

(d) In the event that a complaint of harmful interference resulting from operation of these circuits is received from a foreign source, the offending circuit(s) must cease operation on the particular frequency concerned immediately upon notification by the Commission.

(e) In order to accomodate the situations described in paragraphs (c) and (d) of this section, the equipment shall be capable of transmitting and receiving on any frequency within the bands between 2 and 10 MHz and capable of immediate change among the frequencies.

(f) Only 2K80J3E, 100HA1A and those emission types listed in § 90.237(g) are permitted.

(g) Applicants must fulfill eligibility requirements set out in § 90.20(d)(6) and shall submit disaster communications plans pursuant to § 90.129(m).

(h) Training exercises which require use of these frequencies for more than seven hours a week, cumulative, are not authorized without prior written approval from the Commission.

[46 FR 52373, Oct. 27, 1981, as amended at 48 FR 32831, July 19, 1983; 49 FR 48712, Dec. 14, 1984; 62 FR 18929, Apr. 17, 1997; 72 FR 35196, June 27, 2007]

§ 90.265 Assignment and use of frequencies in the bands allocated for Federal use.

(a) The following center frequencies are available for assignment to fixed stations in the Public Safety Pool or the Industrial/Business Pool, subject to the provisions of this section:

HYDRO CHANNELS (MHz)

169.4250	170.2625	171.1000	406.1250
169.4375	170.2750	171.1125	406.1750
169.4500	170.2875	171.1250	412.6625
169.4625	170.3000	171.8250	412.6750
169.4750	170.3125	171.8375	412.6875
169.4875	170.3250	171.8500	412.7125
169.5000	171.0250	171.8625	412.7250
169.5125	171.0375	171.8750	412.7375
169.5250	171.0500	171.8875	412.7625
170.2250	171.0625	171.9000	412.7750
170.2375	171.0750	171.9125	415.1250
170.2500	171.0875	171.9250	415.1750

(1) The use of these frequencies is limited to transmitting hydrological or meteorological data.

(2) All use of these frequencies is on a secondary basis to Federal Government stations and the hydrological or meteorological data being handled must be made available on request to governmental agencies.

(3) Other provisions of this part notwithstanding, an operational fixed station operating on these frequencies shall not communicate with any station in the mobile service unless written authorization to do so has been obtained from the Commission.

(4) Persons who desire to operate stations on these frequencies should communicate with the Commission for instructions concerning the procedure to be followed in filing formal application.

(5) After May 27, 2005, for the 169–172 MHz band and January 1, 2008 for the 406–416 MHz band, channels for new operations are limited to an authorized bandwidth not to exceed 11.25 kHz. After those dates, existing systems with an authorized bandwidth of greater than 11.25 kHz (including those systems that expand existing operations) may continue to operate with a bandwidth greater than 11.25 kHz until January 1, 2013. Such operations are limited by paragraphs (a)(6) and (a)(7) of this section.

(6) After May 27, 2005, if a licensee of a channel in the band 169–172 MHz which uses equipment with an authorized bandwidth greater than 11.25 kHz

cannot resolve an interference complaint to the satisfaction of an impacted Federal agency or is advised to do so by the Hydro Committee as approved by the FCC, then the licensee must cease operation on the frequency upon notification by the Commission.

(7) After January 1, 2008, if a licensee of a channel in the band 406.1–420 MHz which uses equipment with an authorized bandwidth greater than 11.25 kHz cannot resolve an interference complaint to the satisfaction of an impacted Federal agency or is advised to do so by the Hydro Committee as approved by the FCC, then the licensee must cease operation on the frequency upon notification by the Commission.

(8) After May 27, 2005, new assignments on the frequencies 406.125 MHz and 406.175 MHz are to be primarily for paired operations with the frequencies 415.125 MHz and 415.175 MHz, respectively and limited to an authorized bandwidth not to exceed 11.25 kHz when paired.

(9) Existing stations may continue to use the center frequencies 169.575 MHz, 409.675 MHz, 409.725 MHz, and 412.625 MHz until January 1, 2013, subject to the requirements of paragraphs (a)(6) and (a)(7) of this section.

(b) The following frequencies are available for wireless microphone operations to eligibles in this part, subject to the provisions of this paragraph:

FREQUENCIES (MHz)

169.445	170.245
171.045	171.845
169.505	170.305
171.105	171.905

(1) The emission bandwidth shall not exceed 54 kHz.

(2) The output power shall not exceed 50 milliwatts.

(3) The frequency stability of wireless microphones shall limit the total emission to within ±32.5 kHz of the assigned frequency.

(4) Wireless microphone operations are unprotected from interference from other licensed operations in the band. If any interference from wireless microphone operation is received by any Government or non-Government operation, the wireless microphone must cease operation on the frequency involved. Applications are subject to Government coordination.

(c) The following center frequencies are available for assignment to licensees engaged in forest firefighting and conservation activities, subject to the provisions of this section:

FOREST FIREFIGHTING AND CONSERVATION CHANNELS (MHz)

170.425	171.425	172.225
170.475	171.475	172.275
170.575	171.575	172.375

(1) These frequencies will be assigned on a secondary basis to any U.S. Government station.

(2) The frequencies 170.425 MHz, 170.475 MHz, 170.575 MHz, 171.425 MHz, 171.575 MHz, 172.225 MHz, and 172.275 MHz will be assigned only to licensees directly responsible for the prevention, detection, and suppression of forest fires.

(3) The frequencies 171.475 MHz and 172.275 MHz will be assigned to licensees directly responsible for the prevention, detection, and suppression of forest fires; or to licensees engaged in forest conservation activities for mobile relay operation only.

(4) The frequencies 170.425 MHz, 170.575 MHz, 171.475 MHz, 172.225 MHz, and 172.375 MHz will be assigned for use only in areas west of the Mississippi River.

(5) The frequencies 170.475 MHz, 171.425 MHz, 171.575 MHz, and 172.275 MHz will be assigned for use only in areas east of the Mississippi River.

(6) All applications for use of these frequencies must be accompanied by a letter of concurrence by the United States Department of Agriculture.

(7) After May 27, 2005, channels for new operations are limited to an authorized bandwidth not to exceed 11.25 kHz. Between May 27, 2005, and January 1, 2013, existing systems with an authorized bandwidth of greater than 11.25 kHz (including those systems that expand existing operations) may continue to operate with a bandwidth greater than 11.25 kHz, subject to the limitations set forth in paragraph (c)(8), of this section.

(8) After May 27, 2005, if a licensee that uses equipment with an authorized bandwidth greater than 11.25 kHz

cannot resolve an interference complaint from an impacted Federal agency, then the licensee must cease operation on the frequency upon notification by the Commission.

(d) The frequencies 166.250 MHz and 170.150 MHz are available for assignment to licensees engaged in public safety activities, subject to the provisions of this section:

(1) These frequencies are available for assignment to stations in the Public Safety Pool, only at points within 241.4 km. (150 mi.) of New York, N.Y.;

(2) Operations on these channels is on a secondary basis to any Federal station; and

(3) After May 27, 2005, if a licensee that uses equipment with an authorized bandwidth greater than 11.25 kHz cannot resolve an interference complaint from an impacted Federal agency, then the licensee must cease operation on the frequency upon notification by the Commission.

(4) After May 27, 2005, channels for new operations are limited to an authorized bandwidth not to exceed 11.25 kHz. Between May 27, 2005, and January 1, 2013, existing systems with an authorized bandwidth of greater than 11.25 kHz (including those systems that expand existing operations) may continue to operate with a bandwidth greater than 11.25 kHz, subject to the limitations set forth in paragraph (d)(3), of this section.

(e) The following frequencies are available for use by Medical Radiocommunication Systems:

(1) The frequencies 150.775 MHz, 150.790 MHz, and 163.250 MHz, subject to following provisions:

(i) After May 27, 2005, new assignments for these frequencies shall be authorized only for the purpose of delivering or rendering medical services to individuals (medical radiocommunication systems).

(ii) After May 27, 2005, new operations on the frequency 163.250 MHz are limited to an authorized bandwidth not to exceed 11.25 kHz.

(iii) After January 1, 2008, new operations on the frequencies 150.775 MHz and 150.790 MHz are limited to an authorized bandwidth not to exceed 11.25 kHz.

(iv) Existing systems with an authorized bandwidth of greater than 11.25 kHz (including those systems that expand existing operations) may continue to operate on a primary basis with a bandwidth greater than 11.25 kHz until January 1, 2013. After January 1, 2013, stations that use the frequencies 150.775 MHz, 150.790 MHz, or 163.250 MHz shall be limited to an authorized bandwidth not to exceed 11.25 kHz.

(2) The frequency 152.0075 MHz and frequencies within the bands 462.9375–463.1875 MHz and 467.9375 MHz–468.1875 MHz, subject to the limitations specified in § 90.20.

(Secs. 4(i) and 303(r), Communications Act of 1934, as amended, §§ 0.131 and 0.331 of the Commission's Rules and 5 U.S.C. 553 (b)(3)(B) and (d)(3))

[49 FR 20506, May 15, 1984, as amended at 62 FR 18929, Apr. 17, 1997; 70 FR 21661, Apr. 27, 2005]

§ 90.266 Long distance communications on frequencies below 25 MHz.

(a) The use of any particular frequency between 2 and 25 MHz is limited to those frequencies falling within the bands allocated to the fixed and land mobile services as indicated in § 2.106 of the Commission's Rules and Regulations.

(b) Only in the following circumstances will authority be extended to stations to operate on the frequencies below 25 MHz:

(1) To provide communications circuits to support operations which are highly important to the national interest and where other means of telecommunication are unavailable;

(2) To provide standby and/or backup communications circuits to regular domestic communications circuits which have been disrupted by disasters and/or emergencies.

(c) No protection is afforded to users of these frequencies from harmful interference caused by foreign operations.

(d) In the event that a complaint of harmful interference resulting from operation of these circuits is received from a foreign source, the offending circuit(s) must cease operation on the particular frequency concerned immediately upon notification by the Commission.

(e) In order to accommodate the situations described in paragraphs (c) and (d) of this section, the equipment shall be capable of transmitting and receiving on any frequency within the bands between 2 and 25 MHz and capable of immediate change among the frequencies, provided, however, that this requirement does not apply to equipment manufactured prior to August 15, 1983.

(f) Only 2K80J3E, 100HA1A, 100HA1B and those emission types listed in § 90.237(g) are permitted.

(g) Applicants must fulfill eligibility requirements set out in § 90.35(c)(1) and submit communications plans pursuant to § 90.129(o).

(h) Exercises or circuits tests which require use of these frequencies for more than seven hours per week cumulative are prohibited unless prior written approval is obtained from the Commission.

[48 FR 32996, July 20, 1983, as amended at 49 FR 48712, Dec. 14, 1984; 52 FR 29856, Aug. 12, 1987; 62 FR 18929, Apr. 17, 1997]

§ 90.267 Assignment and use of frequencies in the 450–470 MHz band for low power use.

(a) The following frequencies between 450–470 MHz are designated for low-power use subject to the provisions of this section. For purposes of this section these frequencies are referred to as ''low power frequencies.'' Pairs are shown but single frequencies are available for simplex operations.

(b) *Group A1 Frequencies.* The Industrial/Business Pool frequencies in Group A1 are available on a coordinated basis, pursuant to §§ 90.35(b)(2) and 90.175(b), as follows:

(1) Group A1 frequencies are available for voice and non-voice operations on a co-primary basis. Base, mobile and operational fixed stations will be authorized on Group A1 frequencies. Fixed stations may be licensed as mobile.

(2) Within 80 kilometers (50 miles) of the specified coordinates of the top 100 urban areas listed in § 90.741 of this chapter (''80 km circles'') only low power operation will be authorized. The coordinates of an operational fixed or base station and the geographic center (latitude and longitude) of a mobile area of operation determine whether a station is within an ''80 km circle.''

(i) The maximum ERP for low power operation on Group A1 frequencies is as follows:

Operation	Low side of frequency pair (watts)	High side of frequency pair (watts)
Operational Fixed or Base	20	6
Mobile	6	6
Portable	2	2

(ii) The maximum antenna height for low power fixed stations on Group A1 frequencies will be 23 meters (75 feet) above ground.

(3) Outside the ''80 km circles'' defined in paragraph (b)(2), full-power operational fixed, base, or mobile stations will be authorized as follows:

(i) Power and antenna height limits are governed by § 90.205 of this chapter;

(ii) For any operational fixed, base or mobile station exceeding the low power or antenna height limits listed in paragraph (b)(2), the 21 dBu F(50,10) contour may not overlap any portion of an ''80 km circle;'' and,

(iii) Wide area operations will not be permitted. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographic center (latitude and longitude).

(4) The Industrial/Business Pool Group A1 Low Power Frequencies are as follows:

451/456.18125	451/456.58125	452/457.10625	452/457.70625
451/456.1875	451/456.5875	452/457.1125	452/457.7125
451/456.19375	451/456.59375	452/457.11875	452/457.71875
451/456.28125	451/456.60625	452/457.13125	452/457.78125
451/456.2875	451/456.6125	452/457.1375	452/457.7875
451/456.29375	451/456.61875	452/457.14375	452/457.79375
451/456.30625	451/456.65625	452/457.15625	452/457.80625
451/456.3125	451/456.6625	452/457.1625	452/457.8125
451/456.31875	451/456.66875	452/457.16875	452/457.81875
451/456.35625	451/456.68125	452/457.18125	452/457.83125

451/456.3625	451/456.6875	452/457.1875	452/457.8375
451/456.36875	451/456.69375	452/457.19375	452/457.84375
451/456.38125	451/456.70625	452/457.28125	452/457.88125
451/456.3875	451/456.7125	452/457.2875	452/457.8875
451/456.39375	451/456.71875	452/457.29375	452/457.89375
451/456.40625	451/456.73125	452/457.48125	452/457.98125
451/456.4125	451/456.7375	452/457.4875	452/457.9875
451/456.41875	451/456.74375	452/457.49375	452/457.99375
451/456.45625	451/456.75625	452.53125 (unpaired)	462/467.18125
451/456.4625	451/456.7625	452.5375 (unpaired)	462/467.1875
451/456.46875	451/456.76875	452.54375 (unpaired)	462/467.19375
451/456.48125	452/457.03125	452/457.63125	462/467.45625
451/456.4875	452/457.0375	452/457.6375	462/467.4625
451/456.49375	452/457.04375	452/457.64375	462/467.46875
451/456.50625	452/457.05625	452/457.65625	462/467.48125
451/456.5125	452/457.0625	452/457.6625	462/467.4875
451/456.51875	452/457.06875	452/457.66875	462/467.49375
451/456.55625	452/457.08125	452/457.68125	462/467.50625
451/456.5625	452/457.0875	452/457.6875	462/467.5125
451/456.56875	452/457.09375	452/457.69375	462/467.51875

(c) *Group A2 Frequencies*. The Industrial/Business Pool frequencies in Group A2 are available nationwide on a coordinated basis, pursuant §§ 90.35(b)(2) and 90.175(b) as follows:

(1) Group A2 frequencies are available for voice and non-voice operations on a co-primary basis. Base, mobile or operational fixed stations will be authorized on Group A2 frequencies. Fixed stations may be licensed as mobile.

(2) Low power operation will be authorized nationwide on Group A2 frequencies.

(i) The maximum ERP for low power operation on these frequencies is as follows:

Operation	Low side of frequency pair	High side of frequency pair (watts)
Operational Fixed or Base	20	6
Mobile	6	6
Portable	2	2

(ii) The maximum antenna height for low power fixed stations will be 23 meters (75 feet) above ground.

(3) The Industrial/Business Pool Group A2 Low Power Frequencies are as follows:

451/456.23125	451/456.53125	452/457.40625	452/457.85625
451/456.2375	451/456.5375	452/457.4125	452/457.8625
451/456.24375	451/456.54375	452/457.41875	452/457.86875
451/456.33125	451/456.63125	452/457.50625	
451/456.3375	451/456.6375	452/457.5125	
451/456.34375	451/456.64375	452/457.51875	
451/456.43125	452/457.30625	452/457.75625	
451/456.4375	452/457.3125	452/457.7625	
451/456.44375	452/457.31875	452/457.76875	

(d) *Group B Frequencies*. The Industrial/Business Pool frequencies in Group B are available nationwide on a coordinated basis, pursuant to §§ 90.35(b)(2) and 90.175(b) as follows:

(1) Group B frequencies are available for non-voice operations on a primary basis. Voice operations will be permitted on a secondary basis. Base, mobile or operational fixed stations will be authorized on Group B frequencies. Fixed stations may be licensed as mobile.

(2) Operation on these frequencies is limited to 6 watts ERP for base, mobile or operational fixed stations and 2 watts ERP for portable units. A maximum antenna height of 7 meters (20 ft)

above ground is authorized for fixed stations.

(3) The Industrial/Business Pool Group B Frequencies are as follows:

462/467.20625	462/467.28125	462/467.35625	462/467.43125
462/467.2125	462/467.2875	462/467.3625	462/467.4375
462/467.21875	462/467.29375	462/467.36875	462/467.44375
462/467.23125	462/467.30625	462/467.38125	
462/467.2375	462/467.3125	462/467.3875	
462/467.24375	462/467.31875	462/467.39375	
462/467.25625	462/467.33125	462/467.40625	
462/467.2625	462/467.3375	462/467.4125	
462/467.26875	462/467.34375	462/467.41875	

(e) *Group C Frequencies.* The Industrial/Business Pool frequencies in Group C are available nationwide for non-coordinated itinerant use as follows.

(1) Group C frequencies are available for voice and non-voice operations on a co-primary basis. Only mobile operations will be authorized on Group C frequencies. Stations may operate at fixed locations for a temporary period of time. No stations operating at a permanent fixed location will be authorized on Group C frequencies.

(2) Operation on these frequencies is limited to 6 watts effective radiated power for fixed or mobile units and 2 watts ERP for portable units. Stations operating at fixed locations for a temporary period of time will be limited to an antenna height of 7 meters (20 feet) above ground.

(3) The Industrial/Business Pool Group C Low Power Frequencies are as follows:

461/466.03125	461/466.15625	461/466.28125	462.8125
461/466.0375	461/466.1625	461/466.2875	462.8375 (unpaired)
461/466.04375	461/466.16875	461/466.29375	462/467.8625
461/466.05625	461/466.18125	461/466.30625	462/467.8875
461/466.0625	461/466.1875	461/466.3125	462/467.9125
461/466.06875	461/466.19375	461/466.31875	464/469.48125
461/466.08125	461/466.20625	461/466.33125	464/469.4875
461/466.0875	461/466.2125	461/466.3375	464/469.5125
461/466.09375	461/466.21875	461/466.34375	464/469.51875
461/466.10625	461/466.23125	461/466.35625	464/469.53125
461/466.1125	461/466.2375	461/466.3625	464/469.5375
461/466.11875	461/466.24375	461/466.36875	464/469.5625
461/466.13125	461/466.25625	462.7625 (unpaired)	464/469.56875
461/466.1375	461/466.2625	462.7875 (unpaired)	
461/466.14375	461/466.26875	462.8125 (unpaired)	

(f) *Group D Frequencies.* The Industrial/Business Pool frequencies in Group D are available for central station alarm operations on a coordinated basis, pursuant to §§ 90.35(b)(2) and 90.175(b).

(1) Base, mobile or operational fixed stations will be authorized on Group D frequencies. Fixed stations may be licensed as mobile.

(2) Group D frequencies subject to § 90.35(c)(63) are limited to central station alarm use within the urban areas described in § 90.35(c)(63). Outside the urban areas described in § 90.35(c)(63), Group D frequencies subject to § 90.35(c)(63) are available for general Industrial/Business use on a coordinated basis, pursuant to §§ 90.35(b)(2) and 90.175(b).

(3) Group D frequencies subject to § 90.35(c)(66) are limited to central station alarm use nationwide.

(4) Operation on Group D frequencies is limited to 2 watts output power for mobile, base or operational fixed stations. Fixed stations used for central station alarm operations may utilize

antennas mounted not more than 7 meters (20 feet) above a man-made supporting structure, including antenna structure.

(5) The Industrial/Business Pool Group D Low Power Frequencies are as follows:

460/465.90625	460/465.95625	461/466.00625
460/465.9125	460/465.9625	461/466.0125
460/466.91875	460/465.96875	461/466.01875
460/465.93125	460/465.98125	
460/465.9375	460/465.9875	
460/465.94375	460/465.99375	

(g) *Low Power Public Safety Frequencies.* The frequencies in the Public Safety Pool Low Power Group are available nationwide on a coordinated basis, pursuant to §§ 90.20(c)(2) and 90.175(b).

(1) Base, mobile or operational fixed stations will be authorized on Public Safety Low Power frequencies. Fixed stations may be licensed as mobile.

(2) Operation on these frequencies is limited to 6 watts effective radiated power for base, mobile or operational fixed stations and 2 watts ERP for portable units. A maximum antenna height of 7 meters (20 feet) above ground is authorized for fixed stations.

(3) The Public Safety Pool Low Power Frequencies are as follows:

453/458.03125	453/458.13125	453/458.95625	460/465.53125
453/458.0375	453/458.1375	453/458.9625	460/465.5375
453/458.04375	453/458.14375	453/458.96875	460/465.54375
453/458.05625	453/458.88125	453/458.98125	460/465.55625
453/458.0625	453/458.8875	453/458.9875	460/465.5625
453/458.06875	453/458.89375	453/458.99375	460/465.56875
453/458.08125	453/458.90625	460/465.48125	
453/458.0875	453/458.9125	460/465.4875	
453/458.09375	453/458.91875	460/465.49375	
453/458.10625	453/458.93125	460/465.50625	
453/458.1125	453/458.9375	460/465.5125	
453/458.11875	453/458.94375	460/465.51875	

(h) Unless otherwise noted, the following conditions apply to all low power frequencies:

(1) Except for itinerant operations on Group C, wide area operations will not be authorized. The area of normal day-to-day operations will be described in the application in terms of maximum distance from a geographic center (latitude and longitude).

(2) A hospital or health care institution holding a license to operate a radio station under this part may operate a medical radio telemetry device with an output power not to exceed 20 milliwatts without specific authorization from the Commission. All licensees operating under this authority must comply with the requirements and limitations set forth in this section.

(3) No limit shall be placed on the length or height above ground level of any commercially manufactured radiating transmission line when the transmission line is terminated in a non-radiating load and is routed at least 7 meters (20 feet) interior to the edge of any structure or is routed below ground level.

(4) Sea-based stations may utilize antennas mounted not more than 7 meters (20 feet) above a man-made supporting structure, including antenna structures.

(5) Continuous carrier operations are prohibited on these frequencies.

(6) Unless specified elsewhere in this part, licensees as of August 5, 1999, licensed for operations with an emission designator wider than 11.25 kHz on low power frequencies that are subject to

an authorized bandwidth of 11.25 kHz, may obtain primary status with respect to co-channel licensees by supplying their coordinates to the Commission. These licensees will continue to operate on a secondary basis with respect to adjacent channel licensees. Additionally, these licensees may continue to operate with an authorized bandwidth wider than 11.25 kHz on such low power frequencies, subject to the provisions of § 90.209(b) of this chapter.

(7) Unless specified elsewhere in this part, licensees as of August 5, 1999, licensed for operations with an emission designator wider than 11.25 kHz on frequencies that are subject to an authorized bandwidth of 11.25 kHz, which are not low power frequencies, may obtain primary status with respect to co-channel licensees by modifying their license to low power frequencies, supplying their coordinates to the Commission, and otherwise complying with the conditions of paragraphs (b) through (g) of this section. These licensees will continue to operate on a secondary basis with respect to adjacent channel licensees. Additionally, these licensees may continue to operate with an authorized bandwidth wider than 11.25 kHz on such low power frequencies, subject to the provisions of § 90.209(b) of this chapter.

(8) Applicants proposing to operate with an authorized bandwidth wider than 11.25 kHz, on low power frequencies that are subject to an authorized bandwidth of 11.25 kHz, may be licensed on a secondary, non-interference basis. Such applicants are subject to the conditions of paragraphs (b) through (g) of this section and the provisions of § 90.209(b) of this chapter.

[68 FR 19461, Apr. 21, 2003; 68 FR 55319, Sept. 25, 2003, as amended at 69 FR 4254, Jan. 29, 2004; 75 FR 19284, Apr. 14, 2010]

§ 90.269 Use of frequencies for self-powered vehicle detectors.

(a) Frequencies subject to § 90.20(d)(22) may be used for the operation of self-powered vehicle detectors by licensees of base/mobile stations in the Public Safety Pool in accordance with the following conditions:

(1) All stations are limited to 100 milliwatts carrier power and 20K00F7W, 20K00F7X, 20K00F8W, 20K00F8X, 20K00F9W or 20K00F9X emissions. The frequency deviation shall not exceed 5 kHz. No more than two 30 ms. pulses may be emitted for each vehicle sensed.

(2) The transmitters must be crystal controlled with a frequency tolerance of plus or minus .005% from −20° to plus 50 °C. They must be certificated.

(3) The total length of the transmission line plus antenna may not exceed one-half wavelength and must be integral with the unit.

(4) All operation shall be on a secondary, non-interference basis.

(b) [Reserved]

[48 FR 54982, Dec. 8, 1983, as amended at 54 FR 38681, Sept. 20, 1989; 62 FR 18929, Apr. 17, 1997; 63 FR 36610, July 7, 1998]

§ 90.273 Availability and use of frequencies in the 421–430 MHz band.

The frequency bands 422.1875–425.4875 MHz and 427.1875–429.9875 MHz are available for use in the Detroit, Michigan and Cleveland, Ohio areas. The bands 423.8125–425.4875 MHz and 428.8125–429.9875 MHz are available for use in the Buffalo, New York area. Sections 90.273 through 90.281 address the specific rules applicable to these bands. Use of these bands is also subject to the general technical standards and application procedures contained in other subparts of part 90. The technical standards applicable in this band are the same as those contained in subpart I of part 90 for the 450–470 MHz band. Private land mobile use of these frequencies is subject to accepting any interference from Federal Government radiolocation operations.

(a) The following tables list frequencies available for assignment in the Public Safety and Industrial/Business Pools as indicated. In the tables, the Public Safety Pool frequencies are denoted as ''PS'' and the Industrial/Business Pool frequencies are denoted as ''IB.'' The frequencies 422.19375 MHz through 424.99375 MHz are paired with frequencies 427.19375 MHz through 429.99375 MHz, respectively. Only the lower half of each frequency pair, available for base station operation, is listed in the tables. Corresponding mobile and control station frequencies are 5 MHz higher than the base station frequency. The frequencies 425.000 through

425.48125 are unpaired and are available for either single frequency dispatch or paging operations.

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY

Frequency (MHz)	Pool in which assigned
Paired channels:	
422.19375*	IB
422.200	IB
422.20625*	IB
422.21250	IB
422.21875*	IB
422.225	IB
422.23125*	IB
422.23750	IB
422.24375*	IB
422.250	IB
422.25625*	IB
422.26250	IB
422.26875*	IB
422.275	IB
422.28125*	IB
422.28750	IB
422.29375*	IB
422.300	IB
422.30625*	IB
422.31250	IB
422.31875*	IB
422.325	IB
422.33125*	IB
422.33750	IB
422.34375*	IB
422.350	IB
422.35625*	IB
422.36250	IB
422.36875*	IB
422.375	IB
422.38125*	IB
422.38750	IB
422.39375*	IB
422.400	IB
422.40625*	IB
422.41250	IB
422.41875*	IB
422.425	IB
422.43125*	IB
422.43750	IB
422.44375*	IB
422.450	IB
422.45625*	IB
422.46250	IB
422.46875*	IB
422.475	IB
422.48125*	IB
422.48750	IB
422.49375*	IB
422.500	IB
422.50625*	IB
422.51250	IB
422.51875*	IB
422.525	IB
422.53125*	IB
422.53750	IB
422.54375*	IB
422.550	IB
422.55625*	IB
422.56250	IB
422.56875*	IB
422.575	IB
422.58125*	IB
422.58750	IB

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

Frequency (MHz)	Pool in which assigned
422.59375*	IB
422.600	IB
422.60625*	IB
422.61250	IB
422.61875*	IB
422.625	IB
422.63125*	IB
422.63750	IB
422.64375*	IB
422.650	IB
422.65625*	IB
422.66250	IB
422.66875*	IB
422.675	IB
422.68125*	IB
422.68750	IB
422.69375*	IB
422.700	IB
422.70625*	IB
422.71250	IB
422.71875*	IB
422.725	IB
422.73125*	IB
422.73750	IB
422.74375*	IB
422.750	IB
422.75625*	IB
422.76250	IB
422.76875*	IB
422.775	IB
422.78125*	IB
422.78750	IB
422.79375*	IB
422.800	IB
422.80625*	IB
422.81250	IB
422.81875*	IB
422.825	IB
422.83125*	IB
422.83750	IB
422.84375*	IB
422.850	IB
422.85625*	IB
422.86250	IB
422.86875*	IB
422.875	IB
422.88125*	IB
422.88750	IB
422.89375*	IB
422.900	IB
422.90625*	IB
422.91250	IB
422.91875*	IB
422.925	IB
422.93125*	IB
422.93750	IB
422.94375*	IB
422.950	IB
422.95625*	IB
422.96250	IB
422.96875*	IB
422.975	IB
422.98125*	IB
422.98750	IB
422.99375*	IB
423.000	PS
423.00625*	PS
423.01250	PS
423.01875*	PS
423.025	PS

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

Frequency (MHz)	Pool in which assigned
423.03125*	PS
423.03750	PS
423.04375*	PS
423.050	PS
423.05625*	PS
423.06250	PS
423.06875*	PS
423.075	PS
423.08125*	PS
423.08750	PS
423.09375*	PS
423.100	PS
423.10625*	PS
423.11250	PS
423.11875*	PS
423.125	PS
423.13125*	PS
423.13750	PS
423.14375*	PS
423.150	PS
423.15625*	PS
423.16250	PS
423.16875*	PS
423.175	PS
423.18125*	PS
423.18750	PS
423.19375*	PS
423.200	PS
423.20625*	PS
423.21250	PS
423.21875*	PS
423.225	PS
423.23125*	PS
423.23750	PS
423.24375*	PS
423.250	PS
423.25625*	PS
423.26250	PS
423.26875*	PS
423.275	PS
423.28125*	PS
423.28750	PS
423.29375*	PS
423.300	PS
423.30625*	PS
423.31250	PS
423.31875*	PS
423.325	PS
423.33125*	PS
423.33750	PS
423.34375*	PS
423.350	PS
423.35625*	PS
423.36250	PS
423.36875*	PS
423.375	PS
423.38125*	PS
423.38750	PS
423.39375*	PS
423.400	PS
423.40625*	PS
423.41250	PS
423.41875*	PS
423.425	PS
423.43125*	PS
423.43750	PS
423.44375*	PS
423.450	PS
423.45625*	PS
423.46250	PS

TABLE 1—CHANNELS AVAILABLE IN DETROIT AND CLEVELAND AREAS ONLY—Continued

Frequency (MHz)	Pool in which assigned
423.46875*	PS
423.475	PS
423.48125*	PS
423.48750	PS
423.49375*	PS
423.500	PS
423.50625*	PS
423.51250	PS
423.51875*	PS
423.525	PS
423.53125*	PS
423.53750	PS
423.54375*	PS
423.550	PS
423.55625*	PS
423.56250	PS
423.56875*	PS
423.575	PS
423.58125*	PS
423.58750	PS
423.59375*	PS
423.600	PS
423.60625*	PS
423.61250	PS
423.61875*	PS
423.625	PS
423.63125*	PS
423.63750	PS
423.64375*	PS
423.650	PS
423.65625*	PS
423.66250	PS
423.66875*	PS
423.675	PS
423.68125*	PS
423.68750	PS
423.69375*	PS
423.700	PS
423.70625*	PS
423.71250	PS
423.71875*	PS
423.725	PS
423.73125*	PS
423.73750	PS
423.74375*	PS
423.750	PS
423.75625*	PS
423.76250	PS
423.76875*	PS
423.775	PS
423.78125*	PS
423.78750	PS
423.79375*	PS
423.800	PS
423.80625*	PS

*This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS

Frequency (MHz)	Pool in which assigned
Paired channels:	
423.81875*	PS
423.825	PS
423.83125*	PS
423.83750	PS

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
423.84375*	PS
423.850	PS
423.85625*	PS
423.86250	PS
423.86875*	PS
423.875	PS
423.88125*	PS
423.88750	PS
423.89375*	PS
423.900	PS
423.90625*	PS
423.91250	PS
423.91875*	PS
423.925	PS
423.93125*	PS
423.93750	PS
423.94375*	PS
423.950	PS
423.95625*	PS
423.96250	PS
423.96875*	PS
423.975	PS
423.98125*	PS
423.98750	PS
423.99375*	PS
424.000	PS
424.00625*	PS
424.01250	PS
424.01875*	PS
424.025	PS
424.03125*	PS
424.03750	PS
424.04375*	PS
424.050	PS
424.05625*	PS
424.06250	PS
424.06875*	PS
424.075	PS
424.08125*	PS
424.08750	PS
424.09375*	PS
424.100	PS
424.10625*	PS
424.11250	PS
424.11875*	PS
424.125	PS
424.13125*	PS
424.13750	PS
424.14375*	PS
424.150	PS
424.15625*	PS
424.16250	PS
424.16875*	PS
424.175	PS
424.18125*	PS
424.18750	PS
424.19375*	PS
424.200	PS
424.20625*	PS
424.21250	PS
424.21875*	PS
424.225	PS
424.23125*	PS
424.23750	PS
424.24375*	PS
424.250	PS
424.25625*	PS
424.26250	PS
424.26875*	PS
424.275	PS

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
424.28125*	PS
424.28750	PS
424.29375*	PS
424.300	PS
424.30625*	PS
424.31250	PS
424.31875*	PS
424.325	PS
424.33125*	PS
424.33750	PS
424.34375*	PS
424.350	PS
424.35625*	PS
424.36250	PS
424.36875*	PS
424.375	PS
424.38125*	PS
424.38750	PS
424.39375*	PS
424.400	IB
424.40625*	IB
424.41250	IB
424.41875*	IB
424.425	IB
424.43125*	IB
424.43750	IB
424.44375*	IB
424.450	IB
424.45625*	IB
424.46250	IB
424.46875*	IB
424.475	IB
424.48125*	IB
424.48750	IB
424.49375*	IB
424.500	IB
424.50625*	IB
424.51250	IB
424.51875*	IB
424.525	IB
424.53125*	IB
424.53750	IB
424.54375*	IB
424.550	IB
424.55625*	IB
424.56250	IB
424.56875*	IB
424.575	IB
424.58125*	IB
424.58750	IB
424.59375*	IB
424.600	IB
424.60625*	IB
424.61250	IB
424.61875*	IB
424.625	IB
424.63125*	IB
424.63750	IB
424.64375*	IB
424.650	IB
424.65625*	IB
424.66250	IB
424.66875*	IB
424.675	IB
424.68125*	IB
424.68750	IB
424.69375*	IB
424.700	IB
424.70625*	IB
424.71250	IB

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
424.71875*	IB
424.725	IB
424.73125*	IB
424.73750	IB
424.74375*	IB
424.750	IB
424.75625*	IB
424.76250	IB
424.76875*	IB
424.775	IB
424.78125*	IB
424.78750	IB
424.79375*	IB
424.800	IB
424.80625*	IB
424.81250	IB
424.81875*	IB
424.825	IB
424.83125*	IB
424.83750	IB
424.84375*	IB
424.850	IB
424.85625*	IB
424.86250	IB
424.86875*	IB
424.875	IB
424.88125*	IB
424.88750	IB
424.89375*	IB
424.900	IB
424.90625*	IB
424.91250	IB
424.91875*	IB
424.925	IB
424.93125*	IB
424.93750	IB
424.94375*	IB
424.950	IB
424.95625*	IB
424.96250	IB
424.96875*	IB
424.975	IB
424.98125*	IB
424.98750	IB
424.99375*	IB
Single channels:	
425.000	IB
425.00625*	IB
425.01250	IB
425.01875*	IB
425.025	IB
425.03125*	IB
425.03750	IB
425.04375*	IB
425.050	IB
425.05625*	IB
425.06250	IB
425.06875*	IB
425.075	IB
425.08125*	IB
425.08750	IB
425.09375*	IB
425.100	IB
425.10625*	IB
425.11250	IB
425.11875*	IB
425.125	IB
425.13125*	IB
425.13750	IB
425.14375*	IB

TABLE 2—CHANNELS AVAILABLE IN BUFFALO, DETROIT AND CLEVELAND AREAS—Continued

Frequency (MHz)	Pool in which assigned
425.150	IB
425.15625*	IB
425.16250	IB
425.16875*	IB
425.175	IB
425.18125*	IB
425.18750	IB
425.19375*	IB
425.200	IB
425.20625*	IB
425.21250	IB
425.21875*	IB
425.225	IB
425.23125*	IB
425.23750	IB
425.24375*	IB
425.250	PS
425.25625*	PS
425.26250	PS
425.26875*	PS
425.275	PS
425.28125*	PS
425.28750	PS
425.29375*	PS
425.300	PS
425.30625*	PS
425.31250	PS
425.31875*	PS
425.325	PS
425.33125*	PS
425.33750	PS
425.34375*	PS
425.350	PS
425.35625*	PS
425.36250	PS
425.36875*	PS
425.375	PS
425.38125*	PS
425.38750	PS
425.39375*	PS
425.400	PS
425.40625*	PS
425.41250	PS
425.41875*	PS
425.425	PS
425.43125*	PS
425.43750	PS
425.44375*	PS
425.450	PS
425.45625*	PS
425.46250	PS
425.46875*	PS
425.475	PS
425.48125*	PS

*This frequency will be assigned with an authorized bandwidth not to exceed 6 kHz.

(b) [Reserved]

(c) Base or control stations shall be located within 48 km (30 miles) of the center of Buffalo or 80 km (50 miles) of the center of Detroit. In Cleveland, base or control stations will be allowed at locations north of line A that are within 48 km (30 miles) of the city center. In addition, low power (2 watts or less) base stations may locate within 80

km (50 miles) of the center of Buffalo. The following coordinates shall be used for the centers of these areas (coordinates are referenced to North American Datum 1983 (NAD83)):

Buffalo, NY.	42°52′52.2″ North latitude. 78°52′20.1″ West longitude.
Cleveland, OH.	41°29′51.2″ North latitude. 81°41′49.5″ West longitude.
Detroit, MI.	42°19′48.1″ North latitude. 83°02′56.7″ West longitude.

(d) Mobile operation shall be confined to within 80 km (50 miles) of the centers of Detroit, Cleveland, or Buffalo.

[52 FR 6156, Mar. 2, 1987, as amended at 54 FR 38681, Sept. 20, 1989; 58 FR 31476, June 3, 1993; 58 FR 44957, Aug. 25, 1993; 60 FR 37269, July 19, 1995; 61 FR 6576, Feb. 21, 1996; 62 FR 18929, Apr. 17, 1997; 63 FR 68965, Dec. 14, 1998]

§ 90.275 Selection and assignment of frequencies in the 421–430 MHz band.

Applicants must specify the frequencies in which the proposed system will operate pursuant to a recommendation by a frequency coordinator certified for the pool in which the requested frequency is assigned.

[62 FR 18932, Apr. 17, 1997]

§ 90.279 Power limitations applicable to the 421–430 MHz band.

(a) Base station authorizations in the 421–430 MHz band will be subject to Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limitations as shown in the table below. ERP is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction. EAH is calculated by subtracting the Assumed Average Terrain Elevation (AATE) as listed in table 7 of § 90.619 from the antenna height above mean sea level.

LIMITS OF EFFECTIVE RADIATED POWER (ERP) CORRESPONDING TO EFFECTIVE ANTENNA HEIGHTS (EAH) OF BASE STATIONS IN THE 421–430 MHZ BAND

Effective antenna height (EAH) in meters (feet)	Maximum effective radiated power (ERP) (watts)
0–152 (0–500)	250
Above 152–305 (above 500–1000)	150
Above 305–457 (above 1000–1500)	75
Above 457–610 (above 1500–2000)	40
Above 610–762 (above 2000–2500)	20
Above 762–914 (above 2500–3000)	15
Above 914–1219 (above 3000–4000)	10
Above 1219 (above 4000)	5

(b) The maximum transmitter power output that will be authorized for control stations is 20 watts.

[52 FR 6157, Mar. 2, 1987, as amended at 58 FR 44957, Aug. 25, 1993]

§ 90.281 Restrictions on operational fixed stations in the 421–430 MHz band.

(a) Except for control stations, operational fixed facilities will not be authorized in the 421–430 MHz band. This does not preclude secondary fixed tone signaling and alarm operations authorized in § 90.235.

(b) Control stations associated with one or more mobile relay stations will be authorized only on the assigned frequency of the associated mobile station. Use of a mobile service frequency by a control station of a mobile relay system is subject to the condition that harmful interference shall not be caused to stations of licensees authorized to use the frequency for mobile service communications.

[52 FR 6158, Mar. 2, 1987, as amended at 54 FR 38681, Sept. 20, 1989]

§ 90.283 [Reserved]

Subpart L—Authorization in the Band 470–512 MHz (UHF-TV Sharing)

§ 90.301 Scope.

This subpart governs the authorization and use of frequencies by land mobile stations in the band 470–512 MHz on a geographically shared basis with Television Broadcast stations. Under this special sharing plan, different frequencies are allocated depending on the geographic urban area involved as

fully detailed in the following rule sections.

[43 FR 54791, Nov. 22, 1978, as amended at 62 FR 18932, Apr. 17, 1997]

§ 90.303 Availability of frequencies.

(a) Frequencies in the band 470–512 MHz are available for assignment as described below. Note: coordinates are referenced to the North American Datum 1983 (NAD83).

(b) The following table lists frequency bands that are available for assignment in specific urban areas. The available frequencies are listed in § 90.311 of this part.

Urbanized area	Geographic center		Bands (MHz)	TV channels
	North latitude	West longitude		
Boston, MA	42°21′24.4″	71°03′23.2″	470–476, 482–488	14, 16
Chicago, IL [1]	41°52′28.1″	87°38′22.2″	470–476, 476–482	14, 15
Cleveland, OH [2]	41°29′51.2″	81°49′49.5″	470–476, 476–482	14, 15
Dallas/Fort Worth, TX	32°47′09.5″	96°47′38.0″	482–488	16
Detroit, MI [3]	42°19′48.1″	83°02′56.7″	476–482, 482–488	15, 16
Houston, TX	29°45′26.8″	95°21′37.8″	488–494	17
Los Angeles, CA [4]	34°03′15.0″	118°14′31.3″	470–476, 482–488, 506–512	14, 16, 20
Miami, FL	25°46′38.4″	80°11′31.2″	470–476	14
New York, NY/NE NJ	40°45′06.4″	73°59′37.5″	470–476, 476–482, 482–488	14, 15, 16
Philadelphia, PA	39°56′58.4″	75°09′19.6″	500–506, 506–512	19, 20
Pittsburgh, PA	40°26′19.2″	79°59′59.2″	470–476, 494–500	14, 18
San Francisco/Oakland, CA	37°46′38.7″	122°24′43.9″	482–488, 488–494	16, 17
Washington, DC/MD/VA	38°53′51.4″	77°00′31.9″	488–494, 494–500	17, 18

[1] In the Chicago, IL, urbanized area, channel 15 frequencies may be used for paging operations in addition to low power base/mobile usages, where applicable protection requirements for ultrahigh frequency television stations are met.
[2] Channels 14 and 15 are not available in Cleveland, OH, until further order from the Commission.
[3] Channels 15 and 16 are not available in Detroit, MI, until further order from the Commission.
[4] Channel 16 is available in Los Angeles, CA, for use by eligibles in the Public Safety Radio Pool.

(c) The band 482–488 MHz (TV Channel 16) is available for use by eligibles in the Public Safety Radio Pool in the following areas: New York City; Nassau, Suffolk, and Westchester counties in New York State; and Bergen County, New Jersey. All part 90 rules shall apply to said operations, except that:

(1) *Location of stations.* Base stations shall be located in the areas specified in this paragraph (c). Mobile stations may operate throughout the areas specified in this paragraph (c) and may additionally operate in areas not specified in this paragraph (c) provided that the distance from the Empire State Building (40° 44′ 54.4″ N, 73° 59′ 8.4″ W) does not exceed 48 kilometers (30 miles).

(2) *Protection criteria.* In order to provide co-channel television protection, the following height and power restrictions are required:

(i) Except as specified in paragraph (c)(2)(ii) of this section, base stations shall be limited to a maximum effective radiated power (ERP) of 225 watts at an antenna height of 152.5 meters (500 feet) above average terrain (AAT). Adjustment of the permitted power will be allowed provided it is in accordance with the ''169 kilometer Distance Separation'' entries specified in Table B in 47 CFR 90.309(a) or the ''LM/TV Separation 110 miles (177 km)'' curve in Figure B in 47 CFR 90.309(b).

(ii) For base stations located west of the Hudson River, Kill Van Kull, and Arthur Kill, the maximum ERP and antenna height shall be limited to the entries specified in Table B in 47 CFR 90.309(a) or in Figure B in 47 CFR 90.309(b) for the actual separation distance between the base station and the transmitter site of WNEP-TV in Scranton, PA (41° 10′ 58.0″ N, 75° 52′ 20.0″ W).

(iii) Mobile stations shall be limited to 100 watts ERP in areas of operation extending eastward from the Hudson River and to 10 watts ERP in areas of operation extending westward from the Hudson River.

[69 FR 31907, June 8, 2004, as amended 72 FR 35196, June 27, 2007]

§ 90.305 Location of stations.

(a) The transmitter site(s) for base station(s), including mobile relay stations, shall be located not more than 80 km. (50 mi.) from the geographic center of the urbanized area listed in § 90.303.

(b) Mobile units shall be operated within 48 km. (30 mi.) of their associated base station or stations. Such units may not be operated aboard aircraft in flight except as provided for in § 90.315(i).

(c) Control stations must be located within the area of operation of the mobile units.

(d) Base and control stations shall be located a minimum of 1.6 km. (1 mi.) from local television stations operating on UHF TV channels separated by 2, 3, 4, 5, 7, and 8 TV channels from the television channel in which the base station will operate.

§ 90.307 Protection criteria.

The tables and figures listed in § 90.309 shall be used to determine the effective radiated power (ERP) and antenna height of the proposed land mobile base station and the ERP for the associated control station (control station antenna height shall not exceed 31 meters (100 feet) above average terrain (AAT)).

(a) Base stations operating on the frequencies available for land mobile use in any urbanized area and having an antenna height (AAT) less than 152 meters (500 feet) shall afford protection to co-channel and adjacent channel television stations in accordance with the values set out in tables A and E of § 90.309, except for channel 15 in New York, NY, and Cleveland, OH, and channel 16 in Detroit, MI, where protection will be in accordance with the values set forth in tables B and E in 47 CFR 90.309.

(b) For base stations having antenna heights between 152 and 914 meters (500–3000 feet) above average terrain, the effective radiated power must be reduced below 1 kilowatt in accordance with the values shown in the power reduction graph in Figure A in § 90.309, except for channel 15 in New York, NY, and Cleveland, OH, and channel 16 in Detroit, MI, where the effective radiated power must be reduced in accordance with Figure B in § 90.309. For heights of more than 152 meters (500 feet) above average terrain, the distance to the radio path horizon will be calculated assuming smooth earth. If the distance so determined equals or exceeds the distance to the Grade B contour of a co-channel TV station (Grade B contour defined in § 73.683(a) of this chapter), an authorization will not be granted unless it can be shown that actual terrain considerations are such as to provide the desired protection at the Grade B contour, or that the effective radiated power will be further reduced so that, assuming free space attenuation, the desired protection at the Grade B contour will be achieved.

(c) Mobile units and control stations operating on the frequencies available for land mobile use in any given urbanized area shall afford protection to co-channel and adjacent channel television stations in accordance with the values set forth in table C in § 90.309 and paragraph (d) of this section except for channel 15 in New York, NY, and Cleveland, OH, and channel 16 in Detroit, MI, where protection will be in accordance with the values set forth in table D in § 90.309 and paragraph (d) of this section.

(d) The minimum distance between a land mobile base station which has associated mobile units and a protected adjacent channel television station is 145 km (90 miles).

(e) The television stations to be protected (co-channel, adjacent channel, IM, and IF) in any given urbanized area, in accordance with the provisions of paragraphs (a), (b), (c), and (d) of this section, are identified in the Commission's publication ''TV stations to be considered in the preparation of Applications for Land Mobile Facilities in the Band 470–512 MHz.'' The publication is available at the offices of the Federal Communications Commission in Washington, DC or upon the request of interested persons.

[72 FR 35197, June 27, 2007]

§ 90.309 Tables and figures.

(a) *Directions for using the tables.* (1) Using the method specified in § 1.958 of this chapter, determine the distances between the proposed land mobile base station and the protected co-channel

television station and between the proposed land mobile base station and the protected adjacent channel television station. If the exact mileage does not appear in table A for protected co-channel television stations (or table B for channel 15 in New York and Cleveland and channel 16 in Detroit) or table E for protected adjacent channel television stations, the next lower mileage separation figure is to be used.

(2) Entering the proper table at the mileage figure found in paragraph (a)(1) of this section, find opposite, a selection of powers that may be used for antenna heights ranging from 15 m (50 ft) to 152.5 m (500 ft) (AAT). If the exact antenna height proposed for the land mobile base station does not appear in the proper table, use the power figure beneath the next greater antenna height.

(3) The lowest power found using the tables mentioned in paragraphs (a)(1) and (a)(2) of this section is the maximum power that may be employed by the proposed land mobile base station.

(4) In determining the average elevation of the terrain, the elevations between 3.2 kilometers (2 miles) and 16 kilometers (10 miles) from the antenna site are employed. Profile graphs shall be drawn for a minimum of eight radials beginning at the antenna site and extending 16 kilometers (10 miles). The radials should be drawn starting with true north. At least one radial should be constructed in the direction of the nearest co-channel and adjacent channel UHF television stations. The profile graph for each radial shall be plotted by contour intervals of from 12.2 meters (40 feet) to 30.5 meters (100 feet) and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. For very rugged terrain, 61 meters (200 feet) to 122 meters (400 foot) contour intervals may be used. Where the terrain is uniform or gently sloping, the smallest contour interval indicated on the topographic chart may be used. The average elevation of the 12.8 kilometer (8 mile) distance between 3.2 kilometers (2 miles) and 16 kilometers (10 miles) from the antenna site should be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded by 50 percent of the distance) in sectors and averaging those values. In the preparation of the profile graphs, the elevation or contour intervals may be taken from U.S. Geological Survey Topographic Maps, U.S. Army Corps of Engineers Maps, or Tennessee Valley Authority Maps. Maps with a scale of 1:250,000 or larger (such as 1:24,000) shall be used. Digital Terrain Data Tapes, provided by the National Cartographic Institute, U.S. Geologic Survey, may be utilized in lieu of maps, but the number of data points must be equal to or exceed that specified above. If such maps are not published for the area in question, the next best topographic information should be used.

(5) Applicants for base stations in the Miami, FL, urbanized area may, in lieu of calculating the height of average terrain, use 3 m (10 ft) as the average terrain height.

TABLE A—BASE STATION—COCHANNEL FREQUENCIES (50 dB PROTECTION) MAXIMUM EFFECTIVE RADIATED POWER (ERP) [1]

Distance in kilometers (miles): [2]	Antenna height in meters (feet) (AAT)									
	15 (50)	30.5 (100)	45 (150)	61 (200)	76 (250)	91.5 (300)	106 (350)	122 (400)	137 (450)	152.5 (500)
260 (162)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
257 (160)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	800
249 (155)	1,000	1,000	1,000	1,000	1,000	875	775	700	625	575
241 (150)	1,000	1,000	950	775	725	625	550	500	450	400
233 (145)	850	750	650	575	500	440	400	350	320	300
225 (140)	600	575	475	400	350	300	275	250	230	225
217 (135)	450	400	335	300	255	240	200	185	165	150
209 (130)	350	300	245	200	185	160	145	125	120	100
201 (125)	225	200	170	150	125	110	100	90	80	75
193 (120)	175	150	125	105	90	80	70	60	55	50

[1] The effective radiated power (ERP) and antenna height above average terrain (AAT) shall not exceed the values given in this table.

[2] At this distance from transmitter site of protected UHF television station.

TABLE B—BASE STATION—COCHANNEL FREQUENCIES (40 dB PROTECTION) MAXIMUM EFFECTIVE RADIATED POWER (ERP) [1]

Distance in kilometers (miles): [2]	Antenna height in meters (feet) (AAT)									
	15 (50)	30.5 (100)	45 (150)	61 (200)	76 (250)	91.5 (300)	106 (350)	122 (400)	137 (450)	152.5 (500)
209 (130)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
201 (125)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	850	750	725
193 (120)	1,000	1,000	1,000	1,000	900	750	675	600	550	500
185 (115)	1,100	1,000	800	725	600	525	475	425	375	350
177 (110)	850	700	600	500	425	375	325	300	275	225
169 (105)	600	475	400	325	275	250	225	200	175	150
161 (100)	400	325	275	225	175	150	140	125	110	100
153 (95)	275	225	175	125	110	95	80	70	60	50
145 (90)	175	125	100	75	50	.....	.....	.....	.....	

[1] The effective radiated power (ERP) and antenna height above average terrain shall not exceed the values given in this table.
[2] At this distance from the transmitter site of protected UHF television station.

TABLE C—MOBILE AND CONTROL STATION—DISTANCE BETWEEN ASSOCIATED BASE STATION AND PROTECTED COCHANNEL TV STATION

[50 dB protection]

Effective radiated power (watts) of mobile unit and control station	Distance	
	Kilometers	Miles
200	249	155
150	243	151
100	233	145
50	217	135
25	201	125
10	188	117
5	180	112

TABLE D—MOBILE AND CONTROL STATION—DISTANCE BETWEEN ASSOCIATED LAND MOBILE BASE STATION AND PROTECTED COCHANNEL TV STATION

[40 dB protection]

Effective radiated power (watts) of mobile unit and control station	Distance	
	Kilometers	Miles
200	209	130
150	201	125
100	193	120
50	185	115
25	177	110
10	169	105
5	161	100

TABLE E—BASE STATION ADJACENT CHANNEL FREQUENCIES MAXIMUM EFFECTIVE RADIATED POWER (ERP) [1]

Distance in kilometers (miles): [2 3]	Antenna height in meters (feet) (AAT)									
	15 (50)	30.5 (100)	45 (150)	61 (200)	76 (250)	91.5 (300)	106 (350)	122 (400)	137 (450)	152.5 (500)
108 (67)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
106 (66)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	750
104 (65)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	825	650	600
103 (64)	1,000	1,000	1,000	1,000	1,000	1,000	775	625	500	400
101 (63)	1,000	1,000	1,000	1,000	1,000	650	450	325	325	225
99 (62)	1,000	1,000	1,000	1,000	525	375	250	200	150	125
98 (61)	1,000	1,000	700	450	250	200	125	100	75	50
96 (60)	1,000	1,000	425	225	125	100	75	50		

[1] The effective radiated power (ERP) and antenna height above average terrain (AAT) shall not exceed the values given in this table.
[2] At this distance from transmitter site of protected UHF television station.
[3] The minimum distance is 145 km (90 miles) where there are mobile units associated with the base station. See sec. 90.307(d).

TABLE "F"—DECIBEL REDUCTION/POWER EQUIVALENTS

dB reduction below 1 kW	ERP permitted (figures rounded)
1	795
2	630
3	500
4	400

TABLE "F"—DECIBEL REDUCTION/POWER EQUIVALENTS—Continued

dB reduction below 1 kW	ERP permitted (figures rounded)
5	315
6	250
7	200
8	160

TABLE "F"—DECIBEL REDUCTION/POWER EQUIVALENTS—Continued

dB reduction below 1 kW	ERP permitted (figures rounded)
9	125
10	100
11	80
12	65
13	50
14	40
15	30
16	25
17	20
18	15
19	12
20	10
21	8
22	6
23	5
24	4
25	3
26	2.5
27	2
28	1.5
29	1.25
30	1

(b) *Directions for Using the Figures.* (1) Determine antenna height above average terrain. (According to § 90.309(a)(4).)

(2) Locate this value on the antenna height axis.

(3) Determine the separation between the LM antenna site and the nearest protected co-channel TV station. (According to § 73.611.)

(4) Draw a vertical line to intersect the LM/TV separation curve at the distance determined in step 3 above. For distances not shown in the graph use linear interpolation.

(5) From the intersection of the LM/TV separation curve draw a horizontal line to the power reduction scale.

(6) The power reduction in dB determines the reduction below 1 kW that must be achieved.

(7) See table F for dB/power equivalents.

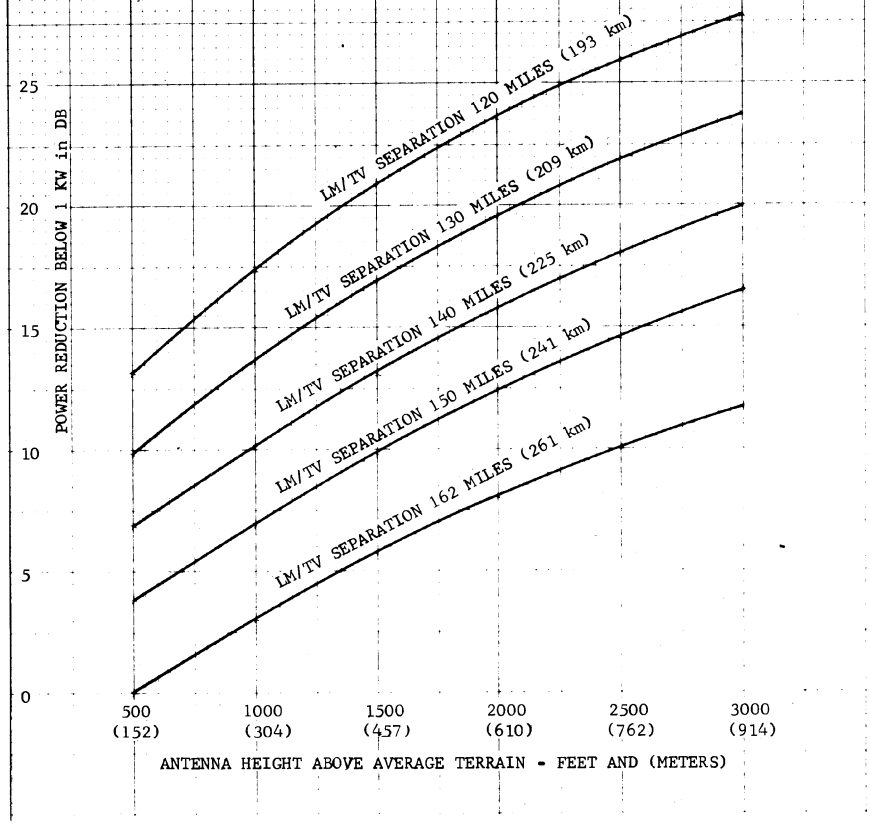
Directions for using this graph:

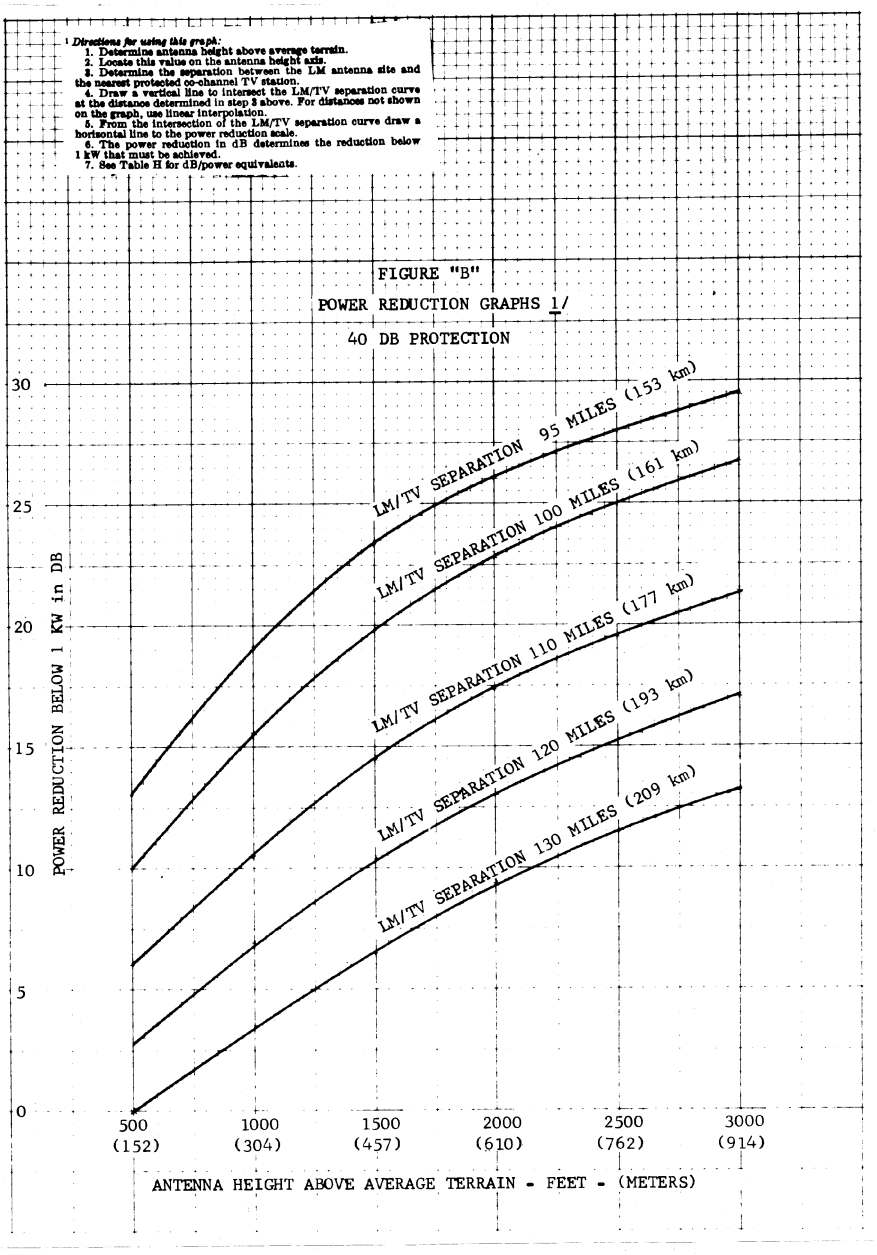
1. Determine antenna height above average terrain.
2. Locate this value on the antenna height axis.
3. Determine the separation between the LM antenna site and the nearest protected co-channel TV station.
4. Draw a vertical line to intersect the LM/TV separation curve at the distance determined in step 3 above. For distances not shown on the graph, use linear interpolation.
5. From the intersection of the LM/TV separation curve draw a horizontal line to the power reduction scale.
6. The power reduction in dB determines the reduction below 1 kW that must be achieved.
7. See Table H for dB/power equivalents.

FIGURE "A"

POWER REDUCTION GRAPHS 1/

50 DB PROTECTION





(Section 0.231(d) of the Commission's Rules and secs. 4(i) and 303 of the Communications Act, as amended)

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 36107, Sept. 14, 1984; 49 FR 49837, Dec. 17, 1984; 58 FR 44958, Aug. 25, 1993; 70 FR 19312, Apr. 13, 2005; 72 FR 35197, June 27, 2007]

§90.311 Frequencies.

(a) Except as provided for in §90.315 and except for those frequencies allocated to services in part 22 of this chapter (see §§22.591, 22.621, 22.651, and 22.1007 of this chapter) the following frequencies in the band 470–512 MHz may be assigned as indicated in the table below. The first and last assignable frequencies are shown. Assignable frequencies occur in increments of 6.25 kHz. The separation between base and mobile transmit frequencies is 3 MHz for two frequency operation.

Channel Assignment	Urbanized Area	General access pool	
		Base and mobile	Mobile
14	Boston, MA	470.30625 to 472.99375	473.30625 to 475.99375
	Chicago, IL		
	Cleveland, OH		
	Miami, FL		
	New York/N.E. NJ		
	Pittsburgh, PA		
	Los Angeles, CA	470.05625 to 472.99375	473.05625 to 475.99375
15	Chicago, IL	476.30625 to 478.99375	479.30625 to 481.99375
	Cleveland, OH		
	Detroit, MI		
	New York/N.E. NJ		
16	Boston, MA	482.30625 to 484.99375	485.30625 to 487.99375
	Dallas/Fort Worth, TX		
	Detroit, MI		
	San Francisco/Oakland, CA		
	Los Angeles, CA (Use is restricted to Public Safety Pool eligibles).	482.00625 to 484.99375	485.00625 to 487.99375
17	Houston, TX	488.30625 to 490.99375	491.30625 to 493.99375
	San Francisco/Oakland, CA		
	Washington, DC/MD/VA		
18	Pittsburgh, PA	494.30625 to 496.99375	497.30625 to 499.99375
	Washington, DC/MD/VA		
19	Philadelphia, PA	500.30625 to 502.99375	503.30625 to 505.99375
20	Los Angeles, CA	506.13125 to 508.99375	509.13125 to 511.99375
	Philadelphia, PA	506.30625 to 508.99375	509.30625 to 511.99375

(1) Channel availability in the General Access Pool in any of the urbanized areas referred to in the table depends on whether that channel is presently assigned to one of the following categories of users:

(i) Public safety (as defined in §90.20(a));

(ii) Power and telephone maintenance licensees (as defined in §90.7);

(iii) Special industrial licensees (as defined in §90.7);

(iv) Business licensees (as defined in §90.35(a));

(v) Petroleum, forest products, and manufacturers licensees (as defined in §90.7);

(vi) Railroad, motor carrier, and automobile emergency licensees (as defined in §90.7); and

(vii) Taxicab licensees (as defined in §90.7).

(2) If assigned, subsequent authorizations will only be granted to users from the same category. If unassigned, or should a channel subsequently become unassigned, it will be treated as available in the General Access Pool.

(3) Normally, each channel should be substantially loaded in accordance with the standards set out in §90.313.

(4) The following frequencies will be authorized a maximum bandwidth of 6 kHz.

Channel	Frequency
14	470.30625
	475.99375
15	476.30625
	481.99375
16	482.30625
	487.99375
17	488.30625
	493.99375
18	494.30625
	499.99375
19	500.30625
	505.99375
20	506.30625
	511.99375

(b) [Reserved]

[43 FR 54791, Nov. 22, 1978, as amended at 44 FR 49692, Aug. 24, 1979; 51 FR 4362, Feb. 4, 1986; 60 FR 37272, July 19, 1995; 62 FR 2041, Jan. 15, 1997; 62 FR 18932, Apr. 17, 1997; 64 FR 36270, July 6, 1999]

§ 90.313 Frequency loading criteria.

(a) Except as provided for in paragraph (b) of this section, the maximum channel loading on frequencies in the 470–512 MHz band is as follows:

(1) 50 units for systems eligible in the Public Safety Pool (see § 90.20(a)).

(2) 90 units for systems eligible in the Industrial/Business Pool (see § 90.35(a)).

(b) If a licensee has exclusive use of a frequency, then the loading standards in paragraph (a) of this section, may be exceeded. If it is a shared channel, the loading standards can be exceeded upon submission of a signed statement by all those sharing the channel agreeing to the increase.

(c) A unit is defined as a mobile transmitter-receiver. Loading standards will be applied in terms of the number of units actually in use or to be placed in use within 8 months following authorization. A licensee will be required to show that an assigned frequency pair is at full capacity before it may be assigned a second or additional frequency pair. Channel capacity may be reached either by the requirements of a single licensee or by several users sharing a channel. Until a channel is loaded to capacity it will be available for assignment to other users in the same area. A frequency pair may be reassigned at distances 64 km. (40 mi.), 32 km. (20 mi.) for Channel 15, Chicago; Channel 20, Philadelphia; and Channel 17, Washington, or more from the location of base stations authorized on that pair without reference to loading at the point of original installation. Following authorization, the licensee shall notify the Commission either during or at the close of the 8 month period of the number of units in operation. In the Industrial Radio Services, if the base station facility is to be used by more than a single licensee, the frequency assigned to it will not be reassigned for use by another facility within 64 km. (40 mi.) or 32 km. (20 mi.) where applicable for a period of 12 months, *Provided*, That the facility is constructed within 90 days from the date of the first grant, meets the loading standards to at least 50 percent within 9 months, and meets all loading standards within 12 months.

[43 FR 54791, Nov. 22, 1978, as amended at 47 FR 36649, Aug. 23, 1982; 62 FR 18933, Apr. 17, 1997]

§ 90.315 Special provisions governing use of frequencies in the 476–494 MHz band (TV Channels 15, 16, 17) in the Southern Louisiana-Texas Offshore Zone.

(a) The frequency bands from 490–491 and 493–494 MHz will be available for assignment to stations governed by this part within Zone A. The boundaries of Zone A are from longitude 87°45′ on the east to longitude 94°00′ on the west, and from the 3-mile limit along the Gulf of Mexico shoreline on the north to the limit of the Outer Continental Shelf on the south. The frequency bands from 484–485 and 476–488 MHz will be available for assignment to stations governed by this part within Zone B. The boundaries of Zone B are from longitude 87°45′ on the east to longitude 95°00′ on the west and from the 3-mile limit along the Gulf of Mexico shoreline on the north to the limit of the Outer Continental Shelf on the south. The frequency bands from 478–479 and 481–481 MHz will be available for assignment to stations governed by this part within Zone C. The boundaries of Zone C are from longitude 94°00′ on the east, the 3-mile limit on the north and west, a 281 km (175 mile) radius from the reference point at Linares, N.L., Mexico on the southwest, latitude 26°00′ on the south, and the limits of the Outer Continental Shelf on the southeast. These frequencies may also be assigned to fixed stations located on shore designed to provide communications service within the zone.

(b) Offshore base/mobile, and offshore and shore fixed stations may be authorized.

(c) F2, F3, F4, F9, and A2, A3, A4, and A9 emissions may be authorized.

(d) Offshore stations shall afford co-channel protection to TV stations on

Channels 15, 16 and 17. Station operating parameters shall be in accordance with the values given in table 1 of this section.

TABLE 1—PROTECTION OF COCHANNEL TELEVISION STATIONS BY OFFSHORE STATIONS OPERATING IN THE SOUTHERN LOUISIANA-TEXAS OFFSHORE ZONE (65 dB PROTECTION); MAXIMUM EFFECTIVE RADIATED POWER

[In Watts]

Distance from transmitter to cochannel TV station kilometers (miles)	Antenna Height above sea level meters (feet)		
	30.5 (100)	45 (150)	61 (200)
338 (210)	1,000	1,000	1,000
330 (205)	1,000	900	800
322 (200)	800	710	630
314 (195)	590	520	450
306 (190)	450	400	330
298 (185)	320	280	240
290 (180)	250	210	175
281 (175)	175	150	130
274 (170)	130	110	100
265 (165)	95	80	70
257 (160)	65	55	50
249 (155)	50	40	35
241 (150)	35	30	25

NOTE: To determine the maximum permissible effective radiated power:

(1) As specified in § 73.611 determine the distance between the proposed station and the cochannel television station. If the exact distance does not appear in table 1 of this section, the next lower distance separation is to be used.

(2) Opposite this distance figure ERPs are given that may be used for antenna heights of 30.5, 45 or 61 meters (100, 150 or 200 ft) ASL. If the exact antenna height is not shown, the ERP allowed will be that shown for the next higher antenna height.

(e) Shore stations communicating point-to-point with offshore stations will be permitted at least the same ERP as the offshore station, but only in the direction of the offshore station. A directional antenna shall be used and the rearward radiated power from the antenna in a sector ±22½° from the line joining the shore antenna to the cochannel television station shall not exceed those shown in table 2 of this section.

TABLE 2—MAXIMUM REARWARD EFFECTIVE RADIATED POWER ALLOWED FOR SHORE STATIONS; REARWARD EFFECTIVE RADIATED POWER (IN WATTS) FROM SHORE ANTENNA IN A SECTOR <±>22½° FROM THE LINE JOINING THE SHORE ANTENNA TO THE COCHANNEL TELEVISION STATION

Distance from transmitter to cochannel television station: kilometers (miles)	Antenna height above ground in meters (feet)					
	30.5 (100)	45 (150)	61 (200)	91.5 (300)	152.5 (500)	228 (750)
298 (185)	320	280	240	190	125	90
290 (180)	250	210	175	125	100	60
281 (175)	175	150	130	100	70	50
274 (170)	130	110	100	75	40	35
265 (165)	95	82	70	50	35	25
257 (160)	65	55	50	40	25	20
249 (155)	50	40	35	30	20	15
241 (150)	35	30	25	20	15	10
233 (145)	25	20	18	15	10	7
225 (140)	18	15	13	10	7	5
217 (135)	13	10	9	7	5	3
209 (130)	10	8	6	5	3	2
201 (125)	7	6	5	4	3	2
193 (120)	5	4	3	3	2	1

NOTE: As an example of the use of tables 1 and 2, assume an offshore station located 290 km (180 mi) from TV Channel 17 located in Bude, Miss. with an antenna height of 30.5 m (100 ft). Table 1 allows this station to operate with 250 W ERP. Now assume the shore station communicating with the offshore station is 48 km (30 mi) from the offshore station and 241 km (150 mi) from Bude, Miss. The shore station antenna height is 152.5 m (500 ft) above ground. The shore station will be allowed the same ERP as the offshore station (250 W) in the direction of the offshore station. Table 2 indicates that the effective radiated power in a sector <±>22½° from the line joining the shore antenna to Bude, Miss. can only be 15 W. Consequently, a directional antenna must be used whose minimum front-to-back ratio over this 45° sector must be at least 12.2 dB. (250 W forward power to 15 W rearward power is a power ratio of 16.6 or 12.2 dB).

(f) To provide cochannel protection to television stations, no shore station will be allowed closer than 193 km miles) from the cochannel television station.

(g) To provide adjacent channel protection to television stations, no shore or offshore station shall be allowed within 128 kilometers (80 miles) of the adjacent channel television station.

(h) Mobile stations shall not operate closer to shore than 6.4 km (4 miles) beyond the three mile limit and shall not operate with an ERP in excess of 100

watts with 9.1 m (30 ft) maximum antenna height.

(i) Mobile stations installed in aircraft shall operate 11 km (7 miles) beyond the three mile limit and shall not operate with an ERP in excess of 1 watt or at heights in excess of 305 m (1000 feet) AMSL.

(j)(1) The following frequency bands are available for assignment in all services for use in the Zones defined in paragraph (a) of this section.

PAIRED FREQUENCIES (MHz)

Zone	Transmit (or receive)	Receive (or transmit)
A	490.01875–490.98125	493.01875–493.98125
B	484.01875–484.98125	487.01875–487.98125
C	478.01875–478.98125	481.01875–481.98125

(2) Only the first and last assignable frequencies are shown. Frequencies shall be assigned in pairs with 3 MHz spacing between transmit and receive frequencies. Assignable frequency pairs will occur in increments of 6.25 kHz. The following frequencies will be assigned for a maximum authorized bandwidth of 6 kHz: 478.01875, 478.98125, 484.01875, 484.98125, 490.01875, 490.98125, 481.01875, 481.98125, 487.01875, 487.98125, 493.01875, and 493.98125 MHz.

(k) Fixed stations operating point-to-point shall be assigned frequencies beginning with 490.025/493.025 MHz (Zone A), 484.025/487.025 MHz (Zone B) and 478.025–481.025 MHz (Zone C) and progressing upwards utilizing available frequencies toward the end of the band. Offshore base/mobile stations shall be assigned frequencies beginning at 490.975/493.975 MHz (Zone A), 484.975/478.975 MHz (Zone B) and 478.975/481.975 MHz (Zone C) and progressing downwards utilizing available frequencies toward the beginning of the band. All frequency assignments are subject to the conditions specified in § 90.173.

[50 FR 12027, Mar. 27, 1985; 50 FR 14389, Apr. 12, 1985, as amended at 58 FR 44959, Aug. 25, 1993; 60 FR 37277, July 19, 1995; 72 FR 35198, June 27, 2007]

§ 90.317 Fixed ancillary signaling and data transmissions.

(a) Licensees of systems that have exclusive-use status in their respective geographic areas may engage in fixed ancillary signaling and data transmissions, subject to the following requirements:

(1) All such ancillary operations must be on a secondary, non-interference basis to the primary mobile operation of any other licensee.

(2) The output power at the remote site shall not exceed 30 watts.

(3) Any fixed transmitters will not count toward meeting the mobile loading requirements nor be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(4) Automatic means must be provided to deactivate the remote transmitter in the event the carrier remains on for a period in excess of three minutes.

(5) Operational fixed stations authorized pursuant to the provisions of this paragraph are exempt from the requirements of §§ 90.425 and 90.429.

(6) If the system is licensed on 470–512 MHz conventional frequencies, and exclusivity has been achieved through the aggregate loading of more than a single co-channel licensee, then a licensee must obtain the concurrence of other co-channel licensees prior to commencing such ancillary operations.

(b) Licensees of systems that do not have exclusive-use status in their respective geographic areas may conduct fixed ancillary signaling and data transmissions only in accordance with the provisions of § 90.235 of this part.

[57 FR 34693, Aug. 6, 1992]

Subpart M—Intelligent Transportation Systems Radio Service

SOURCE: 60 FR 15253, Mar. 23, 1995, unless otherwise noted.

§ 90.350 Scope.

The Intelligent Transportation Systems radio service is for the purpose of integrating radio-based technologies into the nation's transportation infrastructure and to develop and implement the nation's intelligent transportation systems. It includes the Location and Monitoring Service (LMS) and Dedicated Short Range Communications Service (DSRCS). Rules as to eligibility for licensing, frequencies available, and any special requirements for

services in the Intelligent Transportation Systems radio service are set forth in this subpart.

[64 FR 66410, Nov. 26, 1999]

§ 90.351 Location and Monitoring Service.

These provisions authorize the licensing of systems in the Location and Monitoring Service (LMS). LMS systems utilize non-voice radio techniques to determine the location and status of mobile radio units. LMS licensees authorized to operate a system in the 902–928 MHz band may serve individuals, federal government agencies, and entities eligible for licensing in this part 90.

(a) Each application to license an LMS system shall include the following supplemental information:

(1) A detailed description of the manner in which the system will operate, including a map or diagram.

(2) The necessary or occupied bandwidth of emission, whichever is greater.

(3) The data transmission characteristics as follows:

(i) The vehicle location update rates;

(ii) Specific transmitter modulation techniques used;

(iii) For codes and timing scheme: A table of bit sequences and their alphanumeric or indicator equivalents, and a statement of bit rise time, bit transmission rates, bit duration, and interval between bits;

(iv) A statement of amplitude-versus-time of the interrogation and reply formats, and an example of a typical message transmission and any synchronizing pulses utilized.

(4) A plan to show the implementation schedule during the initial license term.

(b) LMS stations are exempted from the identification requirements of § 90.425; however, the Commission may impose automatic station identification requirements when determined to be necessary for monitoring and enforcement purposes.

§ 90.353 LMS operations in the 902–928 MHz band.

LMS systems may be authorized within the 902–928 MHz band, subject to the conditions in this section. LMS licensees are required to maintain whatever records are necessary to demonstrate compliance with these provisions and must make these records available to the Commission upon request:

(a) LMS operations will not cause interference to and must tolerate interference from industrial, scientific, and medical (ISM) devices and radiolocation Government stations that operate in the 902–928 MHz band.

(b) LMS systems are authorized to transmit status and instructional messages, either voice or non-voice, so long as they are related to the location or monitoring functions of the system.

(c) LMS systems may utilize store and forward interconnection, where either transmissions from a vehicle or object being monitored are stored by the LMS provider for later transmission over the public switched network (PSN), or transmissions received by the LMS provider from the PSN are stored for later transmission to the vehicle or object being monitored. Real-time interconnection between vehicles or objects being monitored and the PSN will only be permitted to enable emergency communications related to a vehicle or a passenger in a vehicle. Such real-time, interconnected communications may only be sent to or received from a system dispatch point or entities eligible in the Public Safety or Special Emergency Radio Services. *See* subparts B and C of this part.

(d) Multilateration LMS systems will be authorized on a primary basis within the bands 904–909.75 MHz and 921.75–927.25 MHz. Additionally, multilateration and non-multilateration systems will share the 919.75–921.75 MHz band on a co-equal basis. Licensing will be on the basis of Economic Areas (EAs) for multilateration systems, with one exclusive EA license being issued for each of these three sub-bands. Except as provided in paragraph (f) of this section, multilateration EA licensees may be authorized to operate on only one of the three multilateration bands within a given EA. Additionally, EA multilateration LMS licenses will be conditioned upon the licensee's ability to demonstrate through actual field tests that their systems do not cause

unacceptable levels of interference to 47 CFR part 15 devices.

(e) Multilateration EA-licensed systems and grandfathered automatic vehicle monitoring service (AVM) systems (*see* § 90.363) are authorized on a shared basis and must cooperate in the selection and use of frequencies in accordance with § 90.173(b).

(f) Multilateration EA licensees may be authorized to operate on both the 919.75–921.75 MHz and 921.75–927.75 MHz bands within a given EA (*see* § 90.209(b)(5)).

(g) Multilateration LMS systems whose primary operations involve the provision of vehicle location services, may provide non-vehicular location services.

(h) Non-multilateration stations are authorized to operate on a shared, non-exclusive basis in the 902–904 MHz and 909.75–921.75 MHz sub-bands. Non-multilateration systems and multilateration systems will share the 919.75–921.75 MHz band on a co-equal basis. Non-multilateration LMS systems may not provide non-vehicular location services. The maximum antenna height above ground for non-multilateration LMS systems is 15 meters.

(i) Non-multilateration LMS licenses will be issued on a site-by-site basis, except that municipalities or other governmental operatives may file jointly for a non-multilateration license covering a given U.S. Department of Commerce Bureau of Economic Analysis Economic Area (EA). Such an application must identify all planned sites. After receiving the license, the non-multilateration EA licensee must notify the Commission if sites are deleted or if new sites are added, before those sites may be put into operation.

[60 FR 15253, Mar. 23, 1995, as amended at 62 FR 52044, Oct. 6, 1997; 72 FR 35198, June 27, 2007; 75 FR 19284, Apr. 14, 2010]

§ 90.355 LMS operations below 512 MHz.

Applications requiring not more than 25 kHz bandwidth per frequency in the 25–50 MHz, 150–170 MHz, and 450–512 MHz bands may use either base-mobile frequencies currently assigned the applicant, or be assigned base-mobile frequencies available in the service in which eligibility has been established, provided that:

(a) For transmission between vehicles and base stations, each frequency in a single-frequency mode of operation will provide location data for approximately 200 vehicles, or both frequencies in a two-frequency mode of operation will provide location data for approximately 400 vehicles, except that for frequencies in the 450–512 MHz band that are assigned in pairs in accordance with the allocation plan for the band, the requirement is that location data be provided for approximately 200 vehicles for each frequency pair; and a showing is made that 50 percent of the vehicles will be in operation within the system by the end of the second year of the initial license term, and 70 percent will be in operation within the system by the end of the initial license term; except that if these vehicle loading standards will not be met, frequencies will be assigned only on a secondary non-interference basis to any authorized radiotelephony operation.

(b) The minimum separation between a proposed LMS station and the nearest co-channel base station of another licensee operating a voice system is 75 miles (120 km) for a single frequency mode of operation or 35 miles (56 km) for a two-frequency mode of operation. Where the minimum mileage separation cannot be achieved, agreement to the use of F1D, F2D, G1D, G2D or P0N emission must be received from all existing co-channel licensees using voice emissions within the applicable mileage limits. If there is interference with voice operations and required agreement was not received, or operation was authorized on a secondary non-interference basis, the licensee of the LMS system is responsible for eliminating the interference.

(c) Frequencies additional to any assigned under paragraph (a) of this section will not be assigned to the same licensee at any stations located within 64 km (40 miles) of any station in which the licensee holds an interest until each of such licensee's frequencies for LMS operation is shown to accommodate not less than 90 percent of the frequency loading requirements specified in paragraph (a) of this section.

§ 90.357 Frequencies for LMS systems in the 902–928 MHz band.

(a) Multilateration LMS systems will be authorized on the following LMS sub-bands:

LMS sub-band	Forward link [1]
904.000–909.750 MHz	927.750–928.000 MHz.
919.750–921.750 MHz.[2]	927.500–927.750 MHz.
921.750–927.250 MHz	927.250–927.500 MHz.

[1] Forward links for LMS systems may also be contained within the LMS sub-band. However, the maximum allowable power in these sub-bands is 30 Watts ERP in accordance with § 90.205(l).

[2] The frequency band 919.750–921.750 MHz is shared co-equally between multilateration and non-multilateration LMS systems.

(b) Non-multilateriation LMS systems will be authorized in the following frequency bands:

LMS Sub-band [1]
902.000–904.000 MHz
909.750–921.750 MHz

[1] Applicants for non-multilateration LMS systems should request only the minimum amount of bandwidth necessary to meet their operational needs.

[72 FR 35198, June 27, 2007, as amended at 75 FR 19284, Apr. 14, 2010]

§ 90.359 Field strength limits for EA-licensed LMS systems.

EA-licensed multilateration systems shall limit the field strength of signals transmitted from their base stations to 47 dBuV/m at their EA boundary.

[62 FR 52044, Oct. 6, 1997]

§ 90.361 Interference from part 15 and Amateur operations.

Operations authorized under parts 15 and 97 of this chapter may not cause harmful interference to LMS systems in the 902–928 MHz band. These operations will not be considered to be causing harmful interference to a multilateration LMS system operating in one of the three EA sub-bands (see § 90.357(a)) if they are non-video links operating in accordance with the provisions of parts 15 or 97 of this chapter and at least one of the following conditions are met:

(a) It is a field disturbance sensor operating under § 15.245 of this chapter and it is not operating in the 904–909.750 or 919.750–928.000 MHz sub-bands; or

(b) It does not employ an outdoor antenna; or

(c) If it does employ an outdoor antenna, then if:

(1) The directional gain of the antenna does not exceed 6 dBi, or if the directional gain of the antenna exceeds 6 dBi, it reduces its transmitter output power below 1 watt by the proportional amount that the directional gain of the antenna exceeds 6 dBi; and

(2) Either:

(i) The antenna is 5 meters or less in height above ground; or

(ii) The antenna is more than 5 meters in height above ground but less than or equal to 15 meters in height above ground and either:

(A) Adjusts its transmitter output power below 1 watt by 20 log (h/5) dB, where h is the height above ground of the antenna in meters; or

(B) Is providing the final link for communications of entities eligible under subpart B or C of this part, or is providing the final link for communications of health care providers that serve rural areas, elementary schools, secondary schools or libraries.

[60 FR 15253, Mar. 23, 1995, as amended at 62 FR 52044, Oct. 6, 1997]

§ 90.363 Grandfathering provisions for existing AVM licensees.

(a) These provisions authorize grandfathered operation by automatic vehicle monitoring (AVM) systems licensed on or before February 3, 1995. To attain grandfathered status for their stations, existing multilateration AVM licensees must file, on or before May 22, 1995, applications to modify their station licenses to comply with the band plan shown in § 90.357(a). These applications to modify must identify the multilateration sub-band or sub-bands in which the applicants intend to operate their LMS system stations, once their applications to modify have been authorized. The application to modify a license to comply with the band plan shown in § 90.357(a) may also include a modification to specify an alternate site, so long as the alternate site is 2 kilometers or less from the site specified in the original license.

(b) When existing multilateration AVM licensees file applications to modify, as specified in paragraph (a) of this section, they *must* certify that either:

(1) The stations that compose their AVM system were constructed and placed in operation in accordance with § 90.155(e) on or before February 3, 1995; or

(2) The stations were not constructed and placed in operation in accordance with § 90.155(e) on or before February 3, 1995.

(c) Multilateration AVM systems that were constructed and placed in operation on or before February 3, 1995 will be given until April 1, 1998 to convert to the spectrum identified in their LMS system license. Such licensees may continue to operate their systems during this period. Licensees of multilateration AVM constructed and operational systems that do not file applications to modify on or before May 22, 1995, will be permitted to continue operations under the provisions of former § 90.239 until April 1, 1998 or the end of their original license term, whichever occurs first, at which time such licenses will cancel automatically and will not be renewed.

(d) Multilateration AVM licensees for stations that *were not* constructed and placed in operation on or before February 3, 1995 must construct their LMS systems and place them in operation on the spectrum identified in their LMS system license on or before September 1, 1996, or their licenses will cancel automatically (see Section 90.155 (e)). Also, these licenses will cancel automatically on July 1, 1996 unless timely modification applications are filed on or before this date (see paragraph (a) of this section).

(e) Non-multilateration systems licensed in spectrum other than the 902.00–904.00 and 909.75–921.75 MHz bands must modify their licenses by April 1, 1998 to specify operation solely in the bands provided in § 90.357(b) for non-multilateration systems and to operate their systems consistently with the provisions of § 90.353.

[60 FR 15253, Mar. 23, 1995, as amended at 61 FR 18986, Apr. 30, 1996]

§ 90.365 Partitioned licenses and disaggregated spectrum.

(a) *Eligibility*. (1) Party seeking approval for partitioning and disaggregation shall request an authorization pursuant to § 1.948 of this chapter.

(2) Multilateration LMS licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses. Multilateration LMS licensees may partition or disaggregate to any party that is also eligible to be a multilateration LMS licensee. Partitioning is permitted along any service area defined by the parties, and spectrum may be disaggregated in any amount. The Commission will also consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(b) *Partitioning*. In the case of partitioning, applicants and licensees must file FCC Form 603 pursuant to § 1.948 and list the partitioned service area on a schedule to the application. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83).

(c) *License term*. The license term for a partitioned license area, and for disaggregated spectrum shall be the remainder of the original licensee's license term.

(d) *Construction requirements*—(1) *Requirements for partitioning*. (i) Parties seeking authority to partition must meet one of the following construction requirements:

(A) The partitionee may certify that it will satisfy the applicable construction requirements for the partitioned license area; or

(B) The original licensee may certify that it has or will meet the construction requirement for the entire license area.

(ii) Failure by any partitionee to meet its respective construction requirements will result in the automatic cancellation of the partitioned or disaggregated license without further Commission action.

(2) *Requirements for disaggregation*. Parties seeking authority to disaggregate spectrum must certify in FCC Form 601 which of the parties will be responsible for meeting the five-

year and ten-year construction requirements for the particular market.

[63 FR 40663, July 30, 1998, as amended at 63 FR 68966, Dec. 14, 1998]

REGULATIONS GOVERNING THE LICENSING AND USE OF FREQUENCIES IN THE 5850–5925 MHZ BAND FOR DEDICATED SHORT-RANGE COMMUNICATIONS SERVICE (DSRCS)

§ 90.371 Dedicated short range communications service.

(a) These provisions pertain to systems in the 5850–5925 MHz band for Dedicated Short-Range Communications Service (DSRCS). DSRCS systems use radio techniques to transfer data over short distances between roadside and mobile units, between mobile units, and between portable and mobile units to perform operations related to the improvement of traffic flow, traffic safety, and other intelligent transportation service applications in a variety of environments. DSRCS systems may also transmit status and instructional messages related to the units involved. DSRCS Roadside Units are authorized under this part. DSRCS On-Board Units are authorized under part 95 of this chapter.

(b) DSRCS Roadside Units (RSUs) operating in the band 5850–5925 MHz shall not receive protection from Government Radiolocation services in operation prior to the establishment of the DSRCS station. Operation of DSRCS RSU stations within 75 kilometers of the locations listed in the table below must be coordinated through the National Telecommunications and Information Administration.

Location	Latitude	Longitude
Ft. Lewis, WA	470525N	1223510W
Yakima Firing Center, WA	464018N	1202135W
Ft. Carson, CO	383810N	1044750W
Ft. Riley, KS	385813N	0965139W
Ft. Shafter, HI	211800N	1574900W
Hunter Army Airfield, GA	320100N	0810800W
Ft. Gillem, GA	333600N	0841900W
Ft. Benning, GA	322130N	0845815W
Ft. Stewart, GA	315145N	0813655W
Ft. Rucker, AL	311947N	0854255W
Yuma Proving Grounds, AZ	330114N	1141855W
Ft. Hood, TX	310830N	0974550W
Ft. Knox, KY	375350N	0855655W
Ft. Bragg, NC	350805N	0790035W
Ft. Campbell, KY	363950N	0872820W
Ft. Polk, LA	310343N	0931226W
Ft. Leonard Wood, MO	374430N	0920737W
Ft. Irwin, CA	351536N	1164102W
Ft. Sill, OK	344024N	0982352W
Ft. Bliss, TX	314850N	1062533W
Ft. Leavenworth, KS	392115N	0945500W
Ft. Drum, NY	440115N	0754844W
Ft. Gordon, GA	332510N	0820910W
Ft. McCoy, WI	440636N	0904127W
Ft. Dix, NJ	400025N	0743713W
Parks Reserve Forces Training Area, CA.	374254N	1214218W
Ft. Hunter Ligget, CA	355756N	1211404W
Pacific Missile Test Center, CA.	340914N	1190524W
Naval Air Development Center, PA.	401200N	0750500W
Mid-Atlantic Area Frequency Coordinator, MD.	381710N	0762500W
Naval Research Laboratory, MD.	383927N	0763143W
Naval Ocean Systems Center, CA.	324500N	1171000W
Naval Research Laboratory, DC.	385500N	0770000W
Naval Surface Weapons Center, MD.	390205N	0765900W
Naval Electronic Systems Engineering Activity, MD.	381000N	0762300W
Midway Research Center, VA	382640N	0772650W
Aberdeen Proving Ground, MD.	392825N	0760655W
Ft. Huachuca, AZ	313500N	1102000W
Ft. Monmouth, NJ	401900N	0740215W
Picatinny Arsenal, NJ	405600N	0743400W
Redstone Arsenal, AL	343630N	0863610W
White Sands Missile Range, NM.	322246N	1062813W
Army Research Laboratory, MD.	390000N	0765800W
Space and Missile Systems Center, CA.	335500N	1182200W
Edwards AFB, CA	345400N	1175200W
Patrick AFB, FL	281331N	0803607W
Eglin AFB, FL	302900N	0863200W
Holloman AFB, NM	322510N	1060601W
Kirtland AFB, NM	350230N	1063624W
Griffiss AFB, NY	431315N	0752431W
Wright-Patterson AFB, OH	394656N	0840539W
Hanscom AFB, MA	422816N	0711725W
Nellis AFB, NV	361410N	1150245W
Vandenberg AFB, CA	344348N	1203436W
U.S. Air Force Academy, CO	385800N	1044900W
Brooks AFB, TX	292000N	0982600W
Arnold AFB, TN	352250N	0860202W
Tyndall AFB, FL	300412N	0853436W
Charles E. Kelly Support Facility—Oakdale, PA.	402357N	0800925W

(c) NTIA may authorize additional Government Radiolocation services. Once a new Federal assignment is made, the Commission's Universal Licensing System database will be updated, accordingly, to protect the new Federal assignment and the list in paragraph (b) of this section will be updated as soon as practicable.

[64 FR 66410, Nov. 26, 1999, as amended at 69 FR 46443, Aug. 3, 2004]

§ 90.373 Eligibility in the DSRCS.

The following entities are eligible to hold an authorization to operate Roadside units in the DSRCS:

(a) Any territory, possession, state, city, county, town or similar governmental entity.

(b) Any entity meeting the eligibility requirements of §§ 90.33 or 90.35.

[69 FR 46443, Aug. 3, 2004]

§ 90.375 RSU license areas, communication zones and registrations

(a) DSRCS Roadside Units (RSUs) in the 5850–5925 MHz band are licensed on the basis of non-exclusive geographic areas. Governmental applicants will be issued a geographic area license based on the geo-political area encompassing the legal jurisdiction of the entity. All other applicants will be issued a geographic area license for their proposed area of operation based on county(s), state(s) or nationwide.

(b) Applicants who are approved in accordance with FCC Form 601 will be granted non-exclusive licenses for all non-reserved DSRCS frequencies (*see* § 90.377). Such licenses serve as a prerequisite of registering individual RSUs located within the licensed geographic area described in paragraph (a) of this section. Licensees must register each RSU in the Universal Licensing System (ULS) before operating such RSU. RSU registrations are subject, *inter alia*, to the requirements of § 1.923 of this chapter as applicable (antenna structure registration, environmental concerns, international coordination, and quiet zones). Additionally, RSUs at locations subject to NTIA coordination (*see* § 90.371(b) may not begin operation until NTIA -approval is received. Registrations are not effective until the Commission posts them on the ULS.

(c) Licensees must operate each RSU in accordance with the Commission's Rules and the registration data posted on the ULS for such RSU. Licensees must register each RSU for the smallest communication zone needed (for the DSRC-based intelligent transportation systems application) using one of the following four communication zones:

RSU class	Max. output power (dBm) [1]	Communications zone (meters)
A	0	15
B	10	100
C	20	400
D	28.8	1000

[1] The ASTM-DSRC Standard is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 and approved by The Director of the Federal Register. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554 or National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal register/code of federal regulations/ibr locations.html.* Copies of the ASTM E2213–03 DSRC Standard can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428–2959. Copies may also be obtained from ASTM via the Internet at *http://www.astm.org.* The ASTM-DSRC Standard limits output power to 28.8 dBm but allows more power to overcome cable losses to the antenna as long as the antenna input power does not exceed 28.8 dBm and the EIRP does not exceed 44.8 dBm. However, specific channels and categories of uses have additional limitations under the ASTM-DSRC Standard.

[69 FR 46444, Aug. 3, 2004]

§ 90.377 Frequencies available; maximum EIRP and antenna height, and priority communications.

(a) Licensees shall transmit only the power (EIRP) needed to communicate with an On-Board Unit (OBU) within the communications zone and must take steps to limit the Roadside Unit (RSU) signal within the zone to the maximum extent practicable.

(b) Frequencies available for assignment to eligible applicants within the 5850–5925 MHz band for RSUs and the maximum EIRP permitted for an RSU with an antenna height not exceeding 8 meters above the roadway bed surface are specified in the table below. Where two EIRP limits are given, the higher limit is permitted only for state or local governmental entities.

Channel No.	Frequency range (MHz)	Max. EIRP [1] (dBm)	Channel use
170	5850–5855		Reserved.
172	5855–5865	33	Service Channel. [2]
174	5865–5875	33	Service Channel.
175	5865–5885	23	Service Channel. [3]
176	5875–5885	33	Service Channel.
178	5885–5895	33/44.8	Control Channel.
180	5895–5905	23	Service Channel.

Channel No.	Frequency range (MHz)	Max. EIRP [1] (dBm)	Channel use
181	5895–5915	23	Service Channel. [3]
182	5905–5915	23	Service Channel.
184	5915–5925	33/40	Service Channel. [4]

[1] An RSU may employ an antenna with a height exceeding 8 meters but not exceeding 15 meters provided the EIRP specified in the table above is reduced by a factor of 20 log(Ht/8) in dB where Ht is the height of the radiation center of the antenna in meters above the roadway bed surface. The EIRP is measured as the maximum EIRP toward the horizon or horizontal, whichever is greater, of the gain associated with the main or center of the transmission beam. The RSU antenna height shall not exceed 15 meters above the roadway bed surface.

[2] Channel 172 is designated for public safety applications involving safety of life and property.

[3] Channel Nos. 174/176 may be combined to create a twenty megahertz channel, designated Channel No. 175. Channels 180/182 may be combined to create a twenty-megahertz channel, designated Channel No. 181.

[4] Channel 184 is designated for public safety applications involving safety of life and property. Only those entities meeting the requirements of § 90.373(a) are eligible to hold an authorization to operate on this channel.

(c) Except as provided in paragraphs (d) and (e) of this section, non-reserve DSRCS channels are available on a shared basis only for use in accordance with the Commission's rules. All licensees shall cooperate in the selection and use of channels in order to reduce interference. This includes monitoring for communications in progress and any other measures as may be necessary to minimize interference. Licensees of RSUs suffering or causing harmful interference within a communications zone are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height and direction, additional filtering, or area or hours of operation of the stations concerned. Further the use of any channel at a given geographical location may be denied when, in the judgment of the Commission, its use at that location is not in the public interest; use of any such channel may be restricted as to specified geographical areas, maximum power, or such other operating conditions, contained in this part or in the station authorization.

(d) *Safety/public safety priority*. The following access priority governs all DSRCS operations:

(1) Communications involving the safety of life have access priority over all other DSRCS communications;

(2) Subject to a control channel priority system management strategy (*see* ASTM E2213–03 DSRC Standard at § 4.1.1.2(4)), DSRCS communications involving public safety have access priority over all other DSRC communications not listed in paragraph (d)(1) of this section. Roadside Units (RSUs) operated by state or local governmental entities are presumptively engaged in public safety priority communications.

(e) *Non-priority communications*. DSRCS communications not listed in paragraph (d) of this section, are non-priority communications. If a dispute arises concerning non-priority communications, the licensee of the later-registered RSU must accommodate the operation of the early registered RSU, *i.e.*, interference protection rights are date-sensitive, based on the date that the RSU is first registered (*see* § 90.375) and the later-registered RSU must modify its operations to resolve the dispute in accordance with paragraph (f) of this section.

(f) Except as otherwise provided in the ASTM–DSRC Standard (*see* § 90.379) for the purposes of paragraph (e) of this section, objectionable interference will be considered to exist when the Commission receives a complaint and the difference in signal strength between the earlier-registered RSU and the later-registered RSU (anywhere within the earlier-registered RSU's communication zone) is 18 dB or less (co-channel). Later-registered RSUs causing objectionable interference must correct the interference immediately unless written consent is obtained from the licensee of the earlier-registered RSU.

[71 FR 52749, Sept. 7, 2006, as amended at 72 FR 35199, June 27, 2007]

§ 90.379 ASTM E2213–03 DSRC Standard (ASTM-DSRC Standard).

Roadside Units operating in the 5850–5925 MHz band shall comply with the following technical standard, which is incorporated by reference: American Society for Testing and Materials

(ASTM) E2213–03, ''Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems—5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications'' published September 2003 (ASTM E2213–03 DSRC Standard). The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554 or National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. Copies of the ASTM E2213–03 DSRC Standard can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428–2959. Copies may also be obtained from ASTM via the Internet at *http://www.astm.org*.

[69 FR 46445, Aug. 3, 2004]

§ 90.383 RSU sites near the U.S./Canada or U.S./Mexico border.

Until such time as agreements between the United States and Canada or the United States and Mexico, as applicable, become effective governing border area use of the 5850–5925 MHz band for DSRCS, authorizations to operate Roadside Units (RSUs) are granted subject to the following conditions:

(a) RSUs must not cause harmful interference to stations in Canada or Mexico that are licensed in accordance with the international table of frequency allocations for Region 2 (see § 2.106 of this chapter) and must accept any interference that may be caused by such stations.

(b) Authority to operate DSRCS Roadside Units is subject to modifications and future agreements between the United States and Canada or the United States and Mexico, as applicable.

[69 FR 46445, Aug. 3, 2004]

Subpart N—Operating Requirements

§ 90.401 Scope.

The subpart prescribes general operating requirements for stations licensed under this part. This includes station operating procedures, points of communication, permissible communications, methods of station identification, control requirements, and station record keeping requirements.

§ 90.403 General operating requirements.

(a) Licensees of radio stations in the private land mobile radio services shall be directly responsible for the proper operation and use of each transmitter for which they are licensed. In this connection, licensees shall exercise such direction and control as is necessary to assure that all authorized facilities are employed:

(1) Only for permissible purposes;

(2) Only in a permissible manner; and

(3) Only by persons with authority to use and operate such equipment.

(b) In carrying out their responsibilities under § 90.403(a), licensees shall be bound by the provisions of the Communications Act of 1934, as amended, and by the rules and regulations of the Commission governing the radio service in which their facilities are licensed; and licensees may not, through written or oral agreements or otherwise, relieve themselves of any duty or obligation imposed upon them, by law, as licensees.

(c) Except for stations that have been granted exclusive channels under this part and that are classified as commercial mobile radio service providers pursuant to part 20 of this chapter, each licensee must restrict all transmissions to the minimum practical transmission time and must employ an efficient operating procedure designed to maximize the utilization of the spectrum.

(d) Communications involving the imminent safety-of-life or property are to be afforded priority by all licensees.

(e) Licensees shall take reasonable precautions to avoid causing harmful interference. This includes monitoring the transmitting frequency for communications in progress and such other

measures as may be necessary to minimize the potential for causing interference.

(f) Stations licensed in this part shall not continuously radiate an unmodulated carrier except where required for tests as permitted in § 90.405, except where specifically permitted by this part, where specifically authorized in the station authorization, or on an as needed basis in the Radiolocation Radio Service.

(g) The radiations of the transmitter shall be suspended immediately upon detection or notification of a deviation from the technical requirements of the station authorization and until such deviation is corrected. For transmissions concerning the imminent safety-of-life or property, the transmissions shall be suspended as soon as the emergency is terminated.

[43 FR 54791, Nov. 22, 1978; 44 FR 32220, June 5, 1979, as amended at 59 FR 59965, Nov. 21, 1994]

§ 90.405 Permissible communications.

(a) Stations licensed under this part may transmit only the following types of communication:

(1) Any communication related directly to the imminent safety-of-life or property;

(2) Communications directly related and necessary to those activities which make the licensee eligible for the station license held under this part. In addition, when communication service is provided under the cooperative sharing provisions of § 90.179, the licensee providing such service may transmit communications related to the activities for which the parties receiving the service would be eligible to be licensed.

(3) Communications for testing purposes required for proper station and system maintenance. However, each licensee shall keep such tests to a minimum and shall employ every measure to avoid harmful interference.

(b) The provisions contained in paragraph (a) of this section do not apply where a single base station licensee has been authorized to use a channel above 470 MHz on an exclusive basis, or to stations licensed under this part that are classified as CMRS providers under part 20 of this chapter.

[50 FR 6182, Feb. 14, 1985, as amended at 59 FR 59965, Nov. 21, 1994]

§ 90.407 Emergency communications.

The licensee of any station authorized under this part may, during a period of emergency in which the normal communication facilities are disrupted as a result of hurricane, flood, earthquake or similar disaster, utilize such station for emergency communications in a manner other than that specified in the station authorization or in the rules and regulations governing the operation of such stations. The Commission may at any time order the discontinuance of such special use of the authorized facilities.

[49 FR 36376, Sept. 17, 1984]

§ 90.411 Civil defense communications.

The licensee of any station authorized under this part may, on a voluntary basis, transmit communications necessary for the implementation of civil defense activities assigned such station by local civil defense authorities during an actual or simulated emergency, including drills and tests. The Commission may at any time order the discontinuance of such special use of the authorized facilities.

[49 FR 36376, Sept. 17, 1984]

§ 90.415 Prohibited uses.

Stations licensed under this part shall not:

(a) Transmit program material of any kind for use in connection with broadcasting; or

(b) Render a communications common carrier service, except for stations in the Public Safety Pool providing communications standby facilities under § 90.20(a)(2)(xi) and stations licensed under this part in the SMR, private carrier paging, Industrial/Business Pool, or 220–222 MHz services.

[43 FR 54791, Nov. 22, 1978, as amended at 59 FR 59965, Nov. 21, 1994; 62 FR 18933, Apr. 17, 1997]

§ 90.417 Interstation communication.

(a) Any station licensed under this part may communicate with any other

station without restriction as to type, service, or licensee when the communications involved relate directly to the imminent safety-of-life or property.

(b) Any station licensed under this part may communicate with any other station licensed under this part, with U.S. Government stations, and with foreign stations, in connection with mutual activities, provided that where the communication involves foreign stations prior approval of the Commission must be obtained, and such communication must be permitted by the government that authorizes the foreign station. Communications by Public Safety Pool eligibles with foreign stations will be approved only to be conducted in accordance with Article 5 of the Inter-American Radio Agreement, Washington, DC, 1949, the provisions of which are set forth in § 90.20(b).

[43 FR 54791, Nov. 22, 1978, as amended at 62 FR 18933, Apr. 17, 1997]

§ 90.419 Points of communication.

Normally, operations licensed under this part are intended to provide intrastation mobile communications. For example, a base station is intended to communicate with its associated mobile stations and mobile stations are intended to communicate between associated mobile stations and associated base stations of the licensee. Accordingly, operations between base stations at fixed locations are permitted only in the following situations:

(a) Base stations licensed under subpart T of this part and those in the Public Safety Pool that operate on frequencies below 450 MHz, may communicate on a secondary basis with other base stations, operational fixed stations, or fixed receivers authorized in these services or pools.

(b) Base stations licensed on any frequency in the Industrial/Business Pool and on base stations frequencies above 450 MHz in the Public Safety Pool may communicate on a secondary basis with other base stations, operational fixed stations, or fixed receivers authorized in these pools only when:

(1) The messages to be transmitted are of immediate importance to mobile stations; or

(2) Wireline communications facilities between such points are inoperative, economically impracticable, or unavailable from communications common carrier sources. Temporary unavailability due to a busy wireline circuit is not considered to be within the provisions of this paragraph.

(c) Operational fixed stations may communicate with units of associated mobile stations only on a secondary basis.

(d) Operational fixed stations licensed in the Industrial/Business Pool may communicate on a secondary basis with associated base stations licensed in these services when:

(1) The messages to be transmitted are of immediate importance to mobile stations; or

(2) Wireline communications facilities between such points are inoperative, economically impracticable, or unavailable from communications common carrier sources. Temporary unavailability due to a busy wireline circuit is not considered to be within the provisions of this paragraph.

(e) Travelers' Information Stations are authorized to transmit certain information to members of the traveling public (see § 90.242).

(f) CMRS licensees in the SMR categories of part 90, subpart S, CMRS providers authorized in the 220 MHz service of part 90, subpart T, CMRS paging operations as defined by part 90, subpart P and for-profit interconnected business radio services with eligibility defined by § 90.35 are permitted to utilize their assigned spectrum for fixed services on a co-primary basis with their mobile operations.

[61 FR 45356, Aug. 29, 1996, as amended at 62 FR 18933, Apr. 17, 1997; 72 FR 35199, June 27, 2007]

§ 90.421 Operation of mobile station units not under the control of the licensee.

Mobile stations, as defined in § 90.7, include vehicular-mounted and handheld units. Such units may be operated by persons other than the licensee, as provided for below, when necessary for the licensee to meet its requirements in connection with the activities for which it is licensed. If the number of

such units, together with units operated by the licensee, exceeds the number of mobile units authorized to the licensee, license modification is required. The licensee is responsible for taking necessary precautions to prevent unauthorized operation of such units not under its control.

(a) *Public Safety Pool.* (1) Mobile units licensed in the Public Safety Pool may be installed in any vehicle which in an emergency would require cooperation and coordination with the licensee, and in any vehicle used in the performance, under contract, of official activities of the licensee. This provision does not permit the installation of radio units in non-emergency vehicles that are not performing governmental functions under contract but with which the licensee might wish to communicate.

(2) Mobile units licensed under § 90.20(a)(2)(iii) may be installed in a vehicle or be hand-carried for use by any person with whom cooperation or coordinations is required for medical services activities.

(3) On the Interoperability Channels in the 700 MHz Public Safety Band (*See* § 90.531(b)(1)), hand-held and vehicular transmitters may be operated by any licensee holding a license in the 700 MHz Public Safety Band or by any licensee holding a license for any other public safety frequency pursuant to part 90 of the Commission's rules. Therefore, individual licenses are not required for hand-held and vehicular transmitters in the 700 MHz Band.

(b) *Industrial/Business Pool.* Mobile units licensed in the Industrial/Business Pool may be installed in vehicles of persons furnishing under contract to the licensee and for the duration of the contract, a facility or service directly related to the activities of the licensee.

(c) In addition to the requirements in paragraphs (a) and (b) of this section, frequencies assigned to licensees in the Private Land Mobile Radio Services may be installed in the facilities of those who assist the licensee in emergencies and with whom the licensee must communicate in situations involving imminent safety to life or property.

[65 FR 60877, Oct. 13, 2000, as amended at 66 FR 10635, Feb. 16, 2001]

§ 90.423 Operation on board aircraft.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, and except as may be provided in other sections of this part with respect to operation on specific frequencies, mobile stations first authorized after September 14, 1973, under this part may be operated aboard aircraft for air-to-mobile, air-to-base, air-to-air and air-to-ship communications subject to the following:

(1) Operations are limited to aircraft that are regularly flown at altitudes below 1.6 km (1 mi) above the earth's surface;

(2) Transmitters are to operate with an output power not to exceed ten watts;

(3) Operations are secondary to land-based systems;

(4) Such other conditions, including additonal reductions of altitude and power limitations, as may be required to minimize the interference potential to land-based systems.

(b) Exceptions to the altitude and power limitations set forth in paragraph (a) of this section may be authorized upon a showing of unusual operational requirements which justify departure from those standards, provided that the interference potential to regular land-based operations would not be increased.

(c) Mobile operations aboard aircraft in the services governed by this part, under licenses in effect September 14, 1973, may be continued without regard to provisions of paragraph (a) of this section, as follows:

(1) Operations may be continued only for the balance of the term of such licenses if aircraft involved are regularly flown at altitudes greater than 1.6 km (1 mi) above the earth's surface.

(2) Operations may be continued for one additional renewal license term if the aircraft involved are regularly flown at altitudes below 1.6 km (1 mi) above the earth's surface.

(d) Operation of radiolocation mobile stations may be authorized without regard to limitations and conditions set forth in paragraphs (a), (b), and (c) of this section.

[43 FR 54791, Nov. 22, 1978, as amended at 58 FR 44960, Aug. 25, 1993]

§ 90.425 Station identification.

Stations licensed under this part shall transmit identification in accordance with the following provisions:

(a) *Identification procedure.* Except as provided for in paragraphs (d) and (e) of this section, each station or system shall be identified by the transmission of the assigned call sign during each transmission or exchange of transmissions, or once each 15 minutes (30 minutes in the Public Safety Pool) during periods of continuous operation. The call sign shall be transmitted by voice in the English language or by International Morse Code in accordance with paragraph (b) of this section. If the station is employing either analog or digital voice scrambling, or non-voice emission, transmission of the required identification shall be in the unscrambled mode using A3E, F3E or G3E emission, or International Morse, with all encoding disabled. Permissible alternative identification procedures are as follows:

(1) A mobile relay stations call sign may be used to identify the associated control and mobile stations, except in the Public Safety Pool where the stations operate on frequencies below 450 MHz. Alternatively, a base station (including a mobile relay station) which is controlled by radio may be identified by the transmission of the call sign of the station at which communications originate.

(2) One or more fixed relay stations may be identified by the transmission of the call signs of the stations at which the communications originate.

(3) When a mobile station transmits on a different frequency than its associated base station, the assigned call sign of either the mobile station or the base station may be transmitted. Further, a single mobile unit in the licensee's authorized geographic area of operation may transmit station identification on behalf of any other operating mobile units in the fleet.

(4) *Use of an identifier other than the assigned call sign.* (i) In the Public Safety Pool, mobile units licensed to a governmental entity and which operate on frequencies above 30 MHz may use an identifier which contains, at a minimum, the name of the licensee if the licensee maintains at the station a list of the special identifiers to be used by the mobile units.

(ii) In the Industrial/Business Pool, licensees may request the Commission's local Engineer-in-Charge to approve the use of special mobile unit identifiers in lieu of the assigned call sign. Such requests, however, will not be granted where it appears that harmful interference to international operations may be caused by stations below 50 MHz, or by stations operating in areas within 80 km (50 miles) of an international boundary, or where it appears that the proposed method of identification will not adequately distinguish the mobile units of the applicant from the mobile units of other licensees in the area.

(iii) In the Industrial/Business Pool, railroad licensees (as defined in § 90.7) may identify stations by the name of the railroad and the train number, caboose number, engine number, or the name of the fixed wayside station. If none of these forms is practicable, any similar name or number may be designated by the railroad concerned for use by its employees in the identification of fixed points or mobile units, provided that a list of such identifiers is maintained by the railroad. An abbreviated name or the initials of the railroad may be used where such are in general usage. In those areas where it is shown that no difficulty would be encountered in identifying the transmission of a particular station (as, for example, where stations of one licensee are located in a yard isolated from other radio installations), approval may be given to a request from the licensee for permission to omit the station identification.

(5) *Use of identifiers in addition to assigned call signs.* Nothing in this section shall be construed as prohibiting the transmission of station or unit identifiers which may be necessary or desirable for system operation, provided that they are transmitted in addition to the assigned station call sign or other permissible form of identification.

(b) *Use of automatic Morse code identification equipment.* Automatically activated equipment may be used to transmit station identification in International Morse Code pursuant to the following conditions:

(1) The signal output of the automatic identification equipment shall be connected to the transmitter at the microphone input or any other manufacturer-provided signal input terminal and shall be adjusted to produce 40 percent ±10 percent of the maximum permissible modulation or deviation level. This adjustment shall be performed when all other modulating signals are absent.

(2) The Morse code transmission rate shall be maintained between 20 and 25 words per minute.

(3) The frequency of the keyed tone comprising the identification signal shall be 1200 ±800 Hz. A licensee may be required to change the frequency in order to prevent interference to the operations of another co-channel licensee.

(4) Should activation of automatic Morse code identification equipment interrupt the communications of another co-channel licensee, the Commission may require the use of equipment which will delay automatic station identification until such co-channel communications are completed.

(c) *Special provisions for identification in the Radiolocation Service.* (1) Stations in the Radiolocation Service are not required to identify except upon specific instruction from the Commission or as required by paragraph (c)(2) of this section.

(2) Stations in the Radiolocation Service operating on frequencies above 3400 kHz that employ spread spectrum techniques shall transmit a two letter manufacturer's designator, authorized by the Commission on the station authorization, at the beginning and ending of each transmission and once every 15 minutes during periods of continuing operation. The designator shall be transmitted in International Morse Code at a speed not exceeding 25 words per minute, and the spread spectrum mode of operation shall be maintained while the designator is being transmitted. The identifying signal shall be clearly receivable in the demodulated audio of a narrow-band FM receiver.

(d) *General exemptions.* A station need not transmit identification if:

(1) It is a mobile station operating on the transmitting frequency of the associated base station.

(2) It is a mobile station in the Public Safety Pool using F1E or G1E emission.

(3) It is transmitting for telemetering purposes or for the activation of devices which are employed solely as a means of attracting attention, or for remote control purposes, or which is retransmitting by self-actuating means, a radio signal received from another radio station or stations.

(4) It is any type of radiopositioning or radar station authorized in a service other than the Radiolocation Service.

(5) It is used solely for automatic vehicle monitoring or location.

(6) It is a paging station authorized in accordance with the provisions of § 90.20(a)(2)(v).

(7) It is a mobile station employing non-voice emissions and the associated base station identifies on behalf of the mobile unit(s).

(8) It is a base or mobile station in the 220–222 MHz band authorized to operate on a nationwide basis in accordance with subpart T of this part.

(9) It is a wireless microphone station operating in accordance with the provisions of § 90.265(b).

(10) It is a Roadside Unit in a DSRCS system.

(e) Special provisions for stations licensed under this part that are classified as CMRS providers under part 20 of this chapter.

(1) Station identification will not be required for 929–930 MHz nationwide paging licensees or MTA or EA-based SMR licensees. All other CMRS stations will be required to comply with the station identification requirements of this paragraph.

(2) CMRS stations subject to a station identification requirement will be permitted to use a single call sign for commonly owned facilities that are operated as part of a single system. The call sign must be transmitted each hour within five minutes of the hour, or upon completion of the first transmission after the hour.

(3) CMRS stations granted exclusive channels may transmit their call signs digitally. A licensee that identifies its call sign in this manner must provide the Commission, upon request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

(f) Special provisions for stations licensed under this part that are not classified as CMRS providers under part 20 of this chapter.

(1) Stations subject to a station identification requirement will be permitted to use a single call sign for commonly owned facilities that are operated as part of a single system.

(2) Stations licensed on an exclusive basis in the bands between 150 and 512 MHz that normally employ digital signals for the transmission of data, text, control codes, or digitized voice may be identified by digital transmission of the call sign. A licensee that identifies its call sign in this manner must provide the Commission, upon request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

[43 FR 54791, Nov. 22, 1978]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.425, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.427 Precautions against unauthorized operation.

(a) Each transmitter shall be so installed and protected that it is not accessible to or capable of operation by persons other than those duly authorized by and under the control of the licensee. Provisions of this part authorizing certain unlicensed persons to operate stations, or authorizing unattended operation of stations in certain circumstances, shall not be construed to change or diminish in any respect the responsibility of station licensees to maintain control over the stations licensed to them (including all transmitter units thereof), or for the proper functioning and operation of those stations and transmitter units in accordance with the terms of the licenses of those stations.

(b) Except for frequencies used in accordance with § 90.417, no person shall program into a transmitter frequencies for which the licensee using the transmitter is not authorized.

[43 FR 54791, Nov. 22, 1978, as amended at 52 FR 47570, Dec. 15, 1987]

§ 90.429 Control point and dispatch point requirements.

(a) *Control point required*. Unless permitted to be operated on an unattended basis, each station shall be provided with a control point;

(b) A control point is an operating position:

(1) Which must be under the control and supervision of the licensee;

(2) Where a person immediately responsible for the operation of the transmitter is stationed;

(3) Where the monitoring facilities required by this part are installed.

(c) *Control point location*. The location of the control point will be specified in the station license and will be assumed to be the same as that of the transmitting equipment unless an application for a different location has been approved by the Commission.

(d) *Control point facilities required*. At each control point, the following facilities shall be installed:

(1) A carrier-operated device which will provide continuous visual indication when the transmitter is radiating, or, a pilot lamp or meter which will provide continuous visual indication when the transmitter circuits have been placed in a condition to produce radiation. The provisions of this subparagraph shall not apply to hand-carried transmitters or transmitters installed on motorcycles. The control point for a transmitter utilized to activate another radio station may employ a single pilot lamp or meter as an indication of the activation of local and remote transmitters.

(2) Facilities which will permit the person responsible for the operation of the transmitter either to disconnect the dispatch point circuits from the transmitter or to render the transmitter inoperative from any dispatch point under his supervision; and

(3) Facilities which will permit the person responsible for the operation of the transmitter to turn the transmitter carrier on and off at will.

(e) *Dispatch point.* A dispatch point is any position from which messages may be transmitted under the supervision of the person at a control point who is responsible for the operation of the transmitter. Dispatch points may be installed without authorization from the Commission.

[43 FR 54791, Nov. 22, 1978; 44 FR 67118, Nov. 23, 1979, as amended at 48 FR 29517, June 27, 1983]

§ 90.431 Unattended operation.

No person is required to be in attendance at a station when transmitting during normal rendition of service and when either:

(a) Transmitting for telemetering purposes; or,

(b) Retransmitting by self-actuating means a radio signal received from another radio station or stations.

§ 90.433 Operator requirements.

(a) No operator license or permit is required for the operation, maintenance, or repair of stations licensed under this part.

(b) Any person, with the consent or authorization of the licensee, may employ stations in this service for the purpose of telecommunications.

(c) The station licensee shall be responsible for the proper operation of the station at all times and is expected to provide observations, servicing and maintenance as often as may be necessary to ensure proper operation. All adjustments or tests during or coincident with the installation, servicing, or maintenance of the station should be performed by or under the immediate supervision and responsibility of a person certified as technically qualified to perform transmitter installation, operation, maintenance, and repair duties in the private land mobile services and fixed services by an organization or committee representative of users in those services.

(d) The provisions of paragraph (b) of this section shall not be construed to change or diminish in any respect the responsibility of station licensees to have and to maintain control over the stations licensed to them (including all transmitter units thereof), or for the proper functioning and operation of those stations (including all transmitter units thereof), in accordance with the terms of the licenses of those stations.

(Secs. 4(i) and 303(r), Communications Act of 1934, as amended, 47 U.S.C. 154(i) and 303(r), and sec. 553 of the Administrative Procedures Act, 5 U.S.C. 553)

[49 FR 20672, May 16, 1984]

§ 90.437 Posting station licenses.

(a) The current original authorization for each station shall be retained as a permanent part of the station records but need not be posted.

(b) Entities authorized under this part must make available either a clearly legible photocopy of the authorization for each base or fixed station at a fixed location at every control point of the station or an address or location where the current authorization may be found.

(c) An applicant operating under temporary authority in accordance with § 90.159 must post an executed copy of FCC Form 601 at every control point of the system or an address or location where the current executed copy may be found.

[43 FR 54791, Nov. 22, 1978, as amended at 45 FR 59884, Sept. 11, 1980; 47 FR 41045, Sept. 16, 1982; 47 FR 51883, Nov. 18, 1982; 54 FR 4030, Jan. 27, 1989; 59 FR 59965, Nov. 21, 1994; 63 FR 68966, Dec. 14, 1998]

§ 90.439 Inspection of stations.

All stations and records of stations in these services shall be made available for inspection at any reasonable time and any time while the station is in operation upon reasonable request of an authorized representative of the Commission.

§ 90.441 Inspection and maintenance of antenna structure marking and associated control equipment.

The owner of each antenna structure required to be painted and/or illuminated under the provisions of Section 303(q) of the Communications Act of 1934, as amended, shall operate and maintain the antenna structure painting and lighting in accordance with part 17 of this chapter. In the event of default by the owner, each licensee or

permittee shall be individually responsible for conforming to the requirements pertaining to antenna structure painting and lighting.

[61 FR 4369, Feb. 6, 1996]

§ 90.443 Content of station records.

Each licensee of a station in these services shall maintain records in accordance with the following:

(a) For all stations, the results and dates of the transmitting measurements required by § 90.215 of this part and the name of the person or persons making the measurements.

(b) For all stations, the dates and pertinent details of any maintenance performed on station equipment, and the name and address of the service technician who did the work. If all maintenance is performed by the same technician or service company, the name and address need be entered only once in the station records.

(c) For private land stations that are interconnected with the public switched telephone network, the licensee must maintain a detailed description of how interconnection is accomplished. When telephone service costs are shared, at least one licensee participating in the cost sharing arrangement must maintain cost sharing records. A report of the cost distribution must be placed in the licensee's station records and made available to participants in the sharing and the Commission upon request. See § 90.477.

(d) For shared land stations, the records required by § 90.179.

[43 FR 54791, Nov. 22, 1978, as amended at 48 FR 26621, June 9, 1983; 48 FR 29518, June 27, 1983; 50 FR 39681, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 61 FR 4369, Feb. 6, 1996]

§ 90.445 Form of station records.

(a) Station records shall be kept in an orderly manner, and in such detail that the data required are readily available. Key letters or abbreviations may be used if proper meaning or explanation is set forth in the record.

(b) Each entry in the records of each station shall be signed by a person qualified to do so, having actual knowledge of the facts to be recorded.

(c) No record or portion thereof shall be erased, obliterated, or wilfully destroyed within the required retention period. Any necessary correction may be made only by the person originating the entry, who shall strike out the erroneous portion, initial the correction made, and indicate the date of correction.

§ 90.447 Retention of station records.

Records required by this part shall be retained by the licensee for at least one year.

Subpart O—Transmitter Control

§ 90.460 Scope.

This subpart sets forth the provisions relating to permissible methods of transmitter control and interconnection (see the definition in § 90.7) of radio systems authorized under this part.

[44 FR 67124, Nov. 23, 1979, as amended at 62 FR 18934, Apr. 17, 1997]

§ 90.461 Direct and remote control of transmitters.

(a) *In general.* Radio transmitters may be operated and controlled directly (as when the operating position for the transmitter and the transmitter being operated are at the same location), or remotely (as when the transmitter being operated and the position from which it is being operated are at different locations).

(b) *Control of transmitters at remote locations.* Radio transmitters at remote locations may be operated and controlled through the use of wire line or radio links; or through dial-up circuits, as provided in paragraph (c) of this section. Such control links or circuits may be either those of the licensee or they may be provided by common carriers authorized by law to furnish such service.

(c) *Dial-up circuits.* Dial-up circuits may be provided by wire line telephone companies under appropriate tariffs, and they may be used by licensees for purposes of transmitter control, provided:

(1) The dial-up circuits serve only to link licensed transmitter control points and the transmitters being controlled.

(2) The dial-up circuits are so designed that the transmitters being controlled cannot be operated from any fixed position other than the licensed control points for those transmitters.

(3) Equipment used to provide the transmitter/dial-up-circuit interface is designed to preclude associated mobile units of the licensee from reaching any point(s) served by the wire line telephone facilities other than the control point(s) of the station(s) controlled.

(4) Any direct electrical connection to the telephone network shall comply with applicable tariffs and with part 68 of the Commission's Rules (See § 90.5(j)).

(5) Interconnection, within the meaning of §§ 90.7 and 90.477 through 90.483, may not take place at a control point which connects to its associated transmitter(s) through dial-up circuits; nor may such dial-up transmitter control circuits be used in conjunction with (or shared by) interconnection equipment.

[43 FR 54791, Nov. 22, 1978, as amended at 44 FR 67124, Nov. 23, 1979; 60 FR 50123, Sept. 28, 1995]

§ 90.463 Transmitter control points.

(a) A control operator is required to be stationed at the operating position of a transmitter control point. A control operator is any person designated by the licensee to exercise supervision and control over the operation and use of the licensee's facilities. The control operator may be the licensee; or an employee of the licensee; or the agent of the licensee, appointed by the licensee to act as the control operator; or a third-party contractor, engaged by the licensee to serve as the control operator: *Provided, however,* In no case, through appointment or designation of any person to serve as control operator, may the licensee delegate any of the duties and responsibilities the licensee may have in his capacity as licensee.

(b) Each station or licensed system of communication shall normally have a control point, or control points, at which the control operator or operators are stationed and at or from which the licensee may exercise supervision and control over the authorized facilities, as required by the provisions of § 90.461. *Provided, however,* Control point requirements may vary from one system to another, depending upon the nature of the radio operation; the way and by whom the facilities are employed; and other factors, as set out in other rule sections under this subpart.

(c) A transmitter control point may be located at a fixed position in a system of communication at or from which the control operator exercises supervision and control over the operation and use of the licensed facilities. Each fixed transmitter control point shall have equipment and facilities to permit the control operator:

(1) To determine when the transmitter or transmitters controlled are either radiating ''RF'' energy, or when the transmitter circuits have been placed in a condition to produce such radiation. This may be accomplished either through the use of a carrier operated device which provides a visual indication when the transmitter(s) are radiating or a pilot lamp or meter which provides a visual indication when the transmitter circuits have been placed in a condition to produce radiation. Further, where a local transmitter is used to activate a remote transmitter or transmitters in the licensee's system of communication, a single pilot lamp or meter may be employed to indicate the activation of both the local and the remote transmitter(s).

(2) To turn the carrier of the transmitter on and off at will, or to close the system down completely, when circumstances warrant such action.

(d) The licensee's transmitting facilities may be operated from dispatch points, the fixed control point shall have equipment to permit the control operator to either disconnect the dispatch point circuits from the transmitter(s) or to render the transmitter(s) inoperative from any dispatch point being supervised.

(e) Where the system is interconnected with public communication facilities, as provided at §§ 90.477 through 90.483, and where those rules so require, the fixed control point shall be equipped to permit the control operator:

(1) To monitor co-channel facilities of other licensees sharing an assigned

channel or channels with the licensee in the licensee's area of operation; and,

(2) To terminate any transmission(s) or communication(s) between points in the public communications system and the private communications system.

(f) In urban areas, the location of fixed transmitter control points will be specified, ''same as transmitter,'' unless the control point is at a street address which is different from that of the transmitter(s) controlled. In rural areas, the location of fixed control points will be specified, ''same as transmitter,'' unless the control point is more than 152.5 m (500 ft) from the transmitter(s) controlled. In the latter case, the approximate location of the control point will be specified in distance and direction from the transmitter(s) controlled in terms of distance and geographical quadrant, respectively. It would be assumed that the location of a fixed control point is the same as the location of the transmitter(s) controlled, unless the applicant includes a request for a different location described in appropriate terms as indicated herein.

(g) [Reserved]

(h) Mobile transmitters shall be assumed to be under the immediate control of the mobile operator; provided, however, overall supervision and control of the operation and use of a communication system may be the responsibility of a fixed control point operator. In general, mobile transmitters shall be equipped to permit the operator to determine when they are radiating ''RF'' energy or when the transmitter circuits have been placed in a condition to produce such radiation. This may be accomplished either through the use of a carrier operated device or of a pilot lamp or meter which will provide a visual indication when the transmitter is radiating or has been placed in a condition to produce radiation provided, however, that hand-carried or pack-carried transmitters and transmitters installed on motorcycles need not be so equipped.

[43 FR 54791, Nov. 22, 1978; 44 FR 32220, June 5, 1979; 44 FR 34134, June 14, 1979, as amended at 44 FR 67125, Nov. 23, 1979; 48 FR 29517, June 27, 1983; 54 FR 39740, Sept. 28, 1989; 58 FR 44960, Aug. 25, 1993]

§ 90.465 Control of systems of communication.

(a) Depending on design considerations, control of a system of communication may be exercised in varying ways. In single frequency simplex, base/mobile operations, control may be exercised by the control operator at the fixed control point. In mobile relay systems, where there is an associated control point or control station, control may be exercised by the operator at the control point or control station. In mobile-only systems, control may be exercised by the mobile operator. In communication systems involving multiple base stations or fixed relays control of the system may result from a combination of factors and considerations, including control by a fixed control point operator at some point within the system of communication or control by the mobile station operator of the licensee.

(b) In internal systems, as defined in § 90.7, control may be maintained by conforming the system to the requirements of §§ 90.471 through 90.475.

(c) In interconnected systems, as defined in § 90.7, control may be maintained by conforming operation and system design to that permitted in §§ 90.477 through 90.483.

[43 FR 54791, Nov. 22, 1978, as amended at 54 FR 39740, Sept. 28, 1989; 72 FR 35199, June 27, 2007]

§ 90.467 Dispatch points.

Dispatch points meeting the requirements of this section need not be specifically authorized; provided, however, that the licensee of any radio station operated from a dispatch point or points shall assume full responsibility for the use and operation of the authorized facilities in compliance with all applicable provisions of law or rule and shall comply with the policy:

(a) A dispatch point may be linked to the transmitter(s) being operated by private or leased wire line of fixed radio circuits, provided the requirements of § 90.463 are met.

(b) No telephone position in the public, switched, telephone network will be treated as a dispatch point within the meaning or intent of this section.

(c) Operation of transmitting facilities from dispatch points is permitted

only when the control operator at a fixed control point in the system is on duty and at no other time.

§ 90.469 Unattended operation.

(a) Subject to the provisions of §§ 90.243, 90.245, and 90.247, mobile relay, fixed relay, and mobile repeater stations are authorized for unattended operation; and the transmitter control point requirements set out at §§ 90.463 through 90.465 shall not apply.

(b) Self-activated transmitters may be authorized for unattended operation where they are activated by either electrical or mechanical devices, provided the licensee adopts reasonable means to guard against malfunctions and harmful interference to other users.

INTERNAL TRANSMITTER CONTROL SYSTEMS

§ 90.471 Points of operation in internal transmitter control systems.

The transmitting facilities of the licensee may be operated from fixed positions located on premises controlled by the licensee. The fixed position may be part of a private telephone exchange or it may be any position in a closed or limited access communications facility intended to be used by employees of the licensee for internal communications and transmitter control purposes. Operating positions in internal transmitter control systems are not synonymous with dispatch points (See § 90.467) nor with telephone positions which are part of the public, switched telephone network; and the scheme of regulation is to be considered and treated as being different. See §§ 90.485 through 90.489.

[44 FR 67125, Nov. 23, 1979]

§ 90.473 Operation of internal transmitter control systems through licensed fixed control points.

An internal transmitter control system may be operated under the control and supervision of a control operator stationed at a fixed control point in the system. In such a case, the control point must be equipped to permit the control operator to monitor all traffic to and from fixed positions and mobile stations or paging units of the licensee; and the system shall be so designed to permit the control operator to either disconnect any operating position in the internal system from the transmitter control circuit or to close the system down entirely at will.

[44 FR 67125, Nov. 23, 1979]

§ 90.475 Operation of internal transmitter control systems in specially equipped systems.

(a) An internal transmitter control system need not be designed to meet the requirements of § 90.473 if it meets the following requirements:

(1) All operating positions must be located on premises controlled by the licensee.

(2) An internal transmitter control system may be used in conjunction with other approved methods of transmitter control and interconnection so long as the internal transmitter control system, itself, is neither accessed from telephone positions in the public switched telephone network (PSTN), nor uses dial-up circuits in the PSTN. Licensees with complex communications systems involving fixed systems whose base stations are controlled by such systems may automatically access these base stations through the microwave or operational fixed systems from positions in the PSTN, so long as the base stations and mobile units meet the requirements of § 90.483 and if a separate circuit is provided for each mode of transmitter operation (*i.e.*, conventional, dial-up or Internet).

(3) The system must be designed so that upon completion of a transmission, the base station transmitter(s) will close down automatically within 3 seconds.

(4) To guard against malfunctions, the system must also be designed so that the base station(s) will be deactivated by an automatic timing device when a modulated signal is not transmitted for a period of three (3) consecutive minutes.

(5) The system must include automatic monitoring equipment, installed at the base station transmitter site(s), which will prevent the activation of the system when signals of other co-channel stations are present.

(b) [Reserved]

[43 FR 54791, Nov. 22, 1978, as amended at 44 FR 67125, Nov. 23, 1979; 47 FR 17521, Apr. 23, 1982; 72 FR 35199, June 27, 2007]

INTERCONNECTED SYSTEMS

§ 90.476 Interconnection of fixed stations and certain mobile stations.

(a) Fixed stations and mobile stations used to provide the functions of fixed stations pursuant to the provisions of §§ 90.35(c)(11), 90.35(c)(42), and 90.267 are not subject to the interconnection provisions of §§ 90.477 and 90.483 and may be interconnected with the facilities of common carriers.

(b) Mobile stations used to provide the functions of base and mobile relay stations pursuant to the provisions of §§ 90.35(c)(11), 90.35(c)(42), and 90.267 are not subject to the provisions of § 90.477(d)(3) and may be interconnected with the facilities of common carriers subject to the provisions of §§ 90.477(d)(1), 90.477(d)(2), 90.477(e), and 90.483.

(c) The provisions of this section do not apply to commercial mobile radio service providers, as defined in part 20 of this chapter.

[50 FR 15152, Apr. 17, 1985, as amended at 59 FR 59965, Nov. 21, 1994; 62 FR 18934, Apr. 17, 1997]

§ 90.477 Interconnected systems.

(a) Applicants for new land stations to be interconnected with the public switched telephone network must indicate on their applications (class of station code) that their stations will be interconnected. Licensees of land stations that are not interconnected may interconnect their stations with the public switched telephone network only after modifying their license. *See* § 1.929 of this chapter. In all cases a detailed description of how interconnection is accomplished must be maintained by licensees as part of their station records. See § 90.433 of this part.

(b) In the frequency ranges 806–824 MHz, 851–869 MHz, 896–901 MHz, and 935–940 MHz, interconnection with the public switched telephone network is authorized under the following conditions:

(1) Interconnected operation is on a secondary basis to dispatch operation. This restriction will not apply to trunked systems or on any channel assigned exclusively to one licensee.

(2) Interconnection may be accomplished at any location through a separate or shared interconnection device. When land stations subject to this part are multiple licensed or shared by authorized users, arrangements for telephone service must be made with a duly authorized carrier by users, licensees, or their authorized agents on a non-profit cost sharing basis. When telephone service costs are shared, at least one licensee participating in the cost sharing arrangement must maintain cost sharing records and the costs must be distributed at least once a year. Licensees, users, or their authorized agents may also make joint use arrangements with a duly authorized carrier and arrange that each licensee or user pay the carrier directly for the licensee's or user's share of the joint use of the shared telephone service. A report of the cost distribution must be placed in the licensee's station records and made available to participants in the sharing and the Commission upon request. In all cases, arrangements with the duly authorized carrier must disclose the number of licensees and users and the nature of the use.

(c) Interconnection of facilities in the Radiolocation Service (subpart F) will not be permitted.

(d) In the frequency ranges below 800 MHz, interconnection with the public switched telephone network is authorized under the following conditions:

(1) Interconnected operation is on a secondary basis to dispatch operation. This restriction will not apply to trunked systems or on any channel assigned exclusively to one licensee.

(2) Interconnection may be accomplished at any location through a separate or shared interconnection device. When land stations subject to this part are multiple licensed or shared by authorized users, arrangements for telephone service must be made with a duly authorized carrier by users, licensees, or their authorized agents on a non-profit cost sharing basis. When telephone service costs are shared, at least one licensee participating in the cost sharing arrangement must maintain cost sharing records and the costs

must be distributed at least once a year. Licensees, users, or their authorized agents may also make joint use arrangements with a duly authorized carrier and arrange that each licensee or user pay the carrier directly for the licensee's or user's share of the joint use of the shared telephone service. A report of the cost distribution must be placed in the licensee's station records and made available to participants in the sharing and the Commission upon request. In all cases, arrangements with the duly authorized carrier must disclose the number of licensees and users and the nature of the use.

(3) For licensees in the Industrial/Business Pool and those licensees who establish eligibility pursuant to § 90.20(a)(2) of this part, except for §§ 90.20(a)(2)(i) and 90.20(a)(2)(ii) of this part and medical emergency systems in the 450–470 MHz band, interconnection will be permitted only where the base station site or sites proposed stations are located 120 km (75 mi.) or more from the designated centers of the urbanized areas listed below. If these licensees seek to connect within 120 km (75 mi.) of the 25 cities, they must obtain the consent of all co-channel licensees located both within 120 km (75 mi.) of the center of the city; and within 120 km (75 mi.) of the interconnected base station transmitter. The consensual agreements among the co-channel licensees must specifically state the terms agreed upon and a statement must be submitted to the Commission indicating that all co-channel licensees have consented to the use of interconnection. If a licensee has agreed to the use of interconnection on the channel, but later decides against the use of interconnection, the licensee may request that the co-channel licensees reconsider the use of interconnection. If the licensee is unable to reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If a new licensee is assigned to a frequency where all the co-channel licensees have agreed to the use of interconnection and the new licensee does not agree, the new licensee may request that the co-channel licensees reconsider the use of interconnection. If the new licensee cannot reach an agreement with co-channel licensees it may request that the Commission reassign it to another channel.

NOTE: Coordinates are referenced to North American Datum 1983 (NAD83).

Urban area	North latitude	West longitude
New York, New York-Northeastern New Jersey.	40°45′06.4″	73°59′37.5″
Los Angeles-Long Beach, California.	34°03′15.0″	118°14′31.3″
Chicago, Illinois-Northwestern Indiana.	41°52′28.1″	87°38′22.2″
Philadelphia, Pennsylvania/New Jersey.	39°56′58.4″	75°09′19.6″
Detroit, Michigan	42°19′48.1″	83°02′56.7″
San Francisco-Oakland, California.	37°46′38.7″	122°24′43.9″
Boston, Massachusetts	42°21′24.4″	71°03′23.2″
Washington, DC/Maryland/Virginia.	38°53′51.4″	77°00′31.9″
Cleveland, Ohio	41°29′51.2″	81°41′49.5″
St Louis, Missouri/Illinois	38°37′45.2″	90°12′22.4″
Pittsburgh, Pennsylvania	40°26′19.2″	79°59′59.2″
Minneapolis-St. Paul, Minnesota	44°58′56.9″	93°15′43.8″
Houston, Texas	29°45′26.8″	95°21′37.8″
Baltimore, Maryland	39°17′26.4″	76°36′43.9″
Dallas-Fort Worth, Texas	32°47′09.5″	96°47′38.0″
Milwaukee, Wisconsin	43°02′19.0″	87°54′15.3″
Seattle-Everett, Washington	47°36′31.4″	122°20′16.5″
Miami, Florida	25°46′38.4″	80°11′31.2″
San Diego, California	32°42′53.2″	117°09′24.1″
Atlanta, Georgia	33°45′10.4″	84°23′36.7″
Cincinnati, Ohio/Kentucky	39°06′07.2″	84°30′34.8″
Kansas City, Missouri/Kansas	39°04′56.0″	94°35′20.8″
Buffalo, New York	42°52′52.2″	78°52′20.1″
Denver, Colorado	39°44′58.0″	104°59′23.9″
San Jose, California	37°20′15.8″	121°53′27.8″

(e) Additional frequencies shall not be assigned to enable any licensee to employ a preferred interconnection capability.

(f) Paging systems operating on frequencies in the bands below 800 MHz are not subject to the interconnection provisions of § 90.477(d)(3).

[47 FR 17520, Apr. 23, 1982, as amended at 48 FR 29518, June 27, 1983; 50 FR 15152, Apr. 17, 1985; 51 FR 14998, Apr. 22, 1986; 51 FR 37401, Oct. 22, 1986; 52 FR 15501, Apr. 29, 1987; 52 FR 29856, Aug. 12, 1987; 53 FR 1025, Jan. 15, 1988; 58 FR 44961, Aug. 25, 1993; 61 FR 6576, Feb. 21, 1996; 62 FR 18934, Apr. 17, 1997; 63 FR 68966, Dec. 14, 1998]

§ 90.483 Permissible methods and requirements of interconnecting private and public systems of communications.

Interconnection may be accomplished by commercial mobile service providers licensed under this part by any technically feasible means. Interconnection may be accomplished by private mobile service providers either

manually or automatically under the supervision and control of a transmitter control operator at a fixed position in the authorized system of communications or it may be accomplished under the supervision and control of mobile operators, and is subject to the following provisions:

(a) Where a system is interconnected manually at a fixed control point, the control point operator must maintain the capability to turn the carrier of the transmitter off or to de-activate the system completely when circumstances warrant such action.

(b) When the system is interconnected automatically it may be supervised at the control point or in mobile units.

(1) For control point supervision, the following is required:

(i) The control point operator must maintain the capability to turn the carrier of the transmitter off or to deactivate the system completely when circumstances warrant such action.

(ii) When a frequency is shared by more than one system, automatic monitoring equipment must be installed at the base station to prevent activation of the transmitter when signals of co-channel stations are present and activation would interfere with communications in progress. Licensees may operate without the monitoring equipment if they have obtained the consent of all co-channel licensees located within a 120 kilometer (75 mile) radius of the interconnected base station transmitter. A statement must be submitted to the Commission indicating that all co-channel licensees have consented to operate without the monitoring equipment. If a licensee has agreed that the use of monitoring equipment is not necessary, but later decides that the monitoring equipment is necessary, the licensee may request that the co-channel licensees reconsider the use of monitoring equipment. If the licensee cannot reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If a new licensee is assigned to a frequency where all the co-channel licensees have agreed that the use of monitoring equipment is not necessary, and the new licensee does not agree, the new licensee may request the co-channel licensees to reconsider the use of monitoring equipment. If the new licensee cannot reach an agreement with co-channel licensees, it should request a new channel from the Commission. Systems on frequencies above 800 MHz are exempt from this requirement.

(2) For mobile unit supervision, the following is required:

(i) When a frequency is shared by more than one system, automatic monitoring equipment must be installed at the base station to prevent activation of the transmitter when signals of co-channel stations are present and activation would interfere with communications in progress. Licensees may operate without this equipment if they have obtained the consent of all co-channel licensees located within a 120 kilometer (75 mile) radius of the interconnected base station transmitter. A statement must be submitted to the Commission indicating that all co-channel licensees have consented to operate without the monitoring equipment. If a licensee has agreed that the use of monitoring equipment is not necessary, but later decides that the monitoring equipment is necessary, the licensee may request that the co-channel licensees reconsider the use of monitoring equipment. If the licensee cannot reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If a new licensee is assigned to a frequency where all the co-channel licensees have agreed that the use of monitoring equipment is not necessary, and the new licensee does not agree, the new licensee may request the co-channel licensees to reconsider the use of monitoring equipment. If the new licensee cannot reach an agreement with co-channel licensees, it should request a new channel from the Commission. Systems on frequencies above 800 MHz are exempt from this requirement.

(ii) Initial access points within the public switched telephone network must be limited to transmission of a 3-second tone, after which time the transmitter shall close down. No additional signals may be transmitted until

acknowledgement from a mobile station of the licensee is received. Licensees are exempt from this requirement if they have obtained the consent of all co-channel licensees located within a 120 kilometer (75 mile) radius of the interconnected base station transmitter. However, licensees may choose to set their own time limitations. A statement must be submitted to the Commission indicating that all co-channel licensees have consented to operate without the monitoring equipment. If a licensee has agreed that the use of monitoring equipment is not necessary, but later decides that the monitoring equipment is necessary, the licensee may request that the co-channel licensees reconsider the use of monitoring equipment. If the licensee cannot reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If a new licensee is assigned to a frequency where all the co-channel licensees have agreed that the use of monitoring equipment is not necessary, and the new licensee does not agree, the new licensee may request the co-channel licensees to reconsider the use of monitoring equipment. If the new licensee cannot reach an agreement with co-channel licensees, it should request a new channel from the Commission. Systems on frequencies above 800 MHz are exempt from this requirement.

(c) In single frequency systems, equipment must be installed at the base station which will limit any single transmission from within the public switched telephone network to 30 seconds duration and which in turn will activate the base station receiver to monitor the frequency for a period of not less than three (3) seconds. The mobile station must be capable of terminating the communications during the three (3) seconds. Licensees are exempt from this requirement if they have obtained the consent of all co-channel licensees located within a 120 km (75 mile) radius of the interconnected base station transmitter. However, licensees may choose to set their own time limitations. A statement must be submitted to the Commission indicating that all co-channel licensees have consented to operate without the monitoring equipment. If a licensee has agreed that the use of monitoring equipment is not necessary, but later decides that the monitoring equipment is necessary, the licensee may request that the co-channel licensees reconsider the use of monitoring equipment. If the licensee cannot reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If a new licensee is assigned to a frequency where all the co-channel licensees have agreed that the use of monitoring equipment. If the new licensee cannot reach an agreement with co-channel licensees, it should request a new channel from the Commission.

(d) A timer must be installed at the base station transmitter which limits communications to three (3) minutes. After three (3) minutes, the system must close down, with all circuits between the base station and the public switch telephone network disconnected. This provision does not apply to systems which establish eligibility pursuant to §§ 90.20(a)(1)(i), 90.20(a)(1)(ii), and 90.20(a)(2), except §§ 90.20(a)(2)(i) and 90.20(a)(2)(ii), or who are Power, Petroleum, or Railroad licensees (as defined in § 90.7), or to systems above 800 MHz. All systems must be equipped with a timer that closes down the transmitter within three minutes of the last transmission. Licensees may operate without these requirements if they have obtained the consent of all co-channel licensees located within a 120 km (75 mile) radius of the interconnected base station transmitter. However, licensees may choose to set their own time limitations. A statement must be submitted to the Commission indicating that all co-channel licensees have consented to operate without the monitoring equipment. If a licensee has agreed that the use of monitoring equipment is not necessary, but later decides that the monitoring equipment is necessary, the licensee may request that the co-channel licensees reconsider the use of monitoring equipment. If the licensee cannot reach an agreement with co-channel licensees, the licensee may request that the Commission consider the matter and assign it to another channel. If

a new licensee is assigned to a frequency where all the co-channel licensees have agreed that the use of monitoring equipment is not necessary, and the new licensee does not agree, the new licensee may request the co-channel licensees to reconsider the use of monitoring equipment. If the new licensee cannot reach an agreement with co-channel licensees, it should request a new channel from the Commission.

[47 FR 17520, Apr. 23, 1982, as amended at 48 FR 29518, June 27, 1983; 50 FR 15153, Apr. 17, 1985; 58 FR 44961, Aug. 25, 1993; 59 FR 59966, Nov. 21, 1994; 61 FR 6576, Feb. 21, 1996; 62 FR 18934, Apr. 17, 1997; 72 FR 35199, June 27, 2007]

Subpart P—Paging Operations

§ 90.490 One-way paging operations in the private services.

(a) Subject to specific prohibition or restriction by rule provisions governing the radio service in which a licensee's radio system is authorized, paging operations are permitted:

(1) Where the signals and messages are transmitted by a control operator of the licensee stationed at a licensed control point in the licensee's system of communication.

(2) Where the signals and messages are transmitted from an operating position within an internal system of communication which meets the tests of §§ 90.471 through 90.475.

(3) Where the signals and messages are transmitted from a dispatch point within the licensee's system of communication, as defined as § 90.7.

(b) Systems employing dial-up circuits (§ 90.461(c)) may be used in one-way paging operations, but only where the paging signals are transmitted as provided at paragraph (a)(1) of this section.

(c) Paging may be initiated directly from telephone positions in the public switched telephone network. When land stations are multiple licensed or otherwise shared by authorized users, arrangements for the telephone service must be made with a duly authorized carrier by users, licensees, or their authorized agents on a non-profit, cost-shared basis. When telephone service costs are shared, at least one licensee participating in the cost sharing arrangements must maintain cost sharing records and the costs must be distributed at least once a year. Licensees, users, or their authorized agents may also make joint use arrangements with a duly authorized carrier and arrange that each licensee or user pay the carrier directly for the licensee's or user's share of the joint use of the shared telephone service. A report of the cost distribution must be placed in the licensee's station records and made available to participants in the sharing arrangement and the Commission upon request. In all cases, arrangements with the duly authorized carrier must disclose the number of licensees and users and the nature of the use.

[47 FR 39509, Sept. 8, 1982, as amended at 48 FR 56231, Dec. 20, 1983; 52 FR 15501, Apr. 29, 1987]

§ 90.492 One way paging operations in the 806–824/851–869 MHz and 896–901/935–940 MHz bands.

Paging operations are permitted in these bands only in accordance with §§ 90.645(e) and (f).

[54 FR 4030, Jan. 27, 1989]

§ 90.493 Paging operations on exclusive channels in the 929–930 MHz band.

Paging operations on the exclusive channels in the 929–930 MHz band are subject to the rules set forth in this section.

(a) *Exclusive channels*. The center frequencies of the channels in the 929–930 MHz band that may be assigned on an exclusive basis are as follows: 929.0125, 929.1125, 929.1375, 929.1875, 929.2125, 929.2375, 929.2875, 929.3125, 929.3375, 929.3625, 929.3875, 929.4125, 929.4375, 929.4625, 929.4875, 929.5125, 929.5375, 929.5625, 929.5875, 929.6125, 929.6375, 929.6625, 929.6875, 929.7125, 929.7375, 929.7625, 929.7875, 929.8125, 929.8375, 929.8625, 929.8875, 929.9125, 929.9375, 929.9625, and 929.9875 MHz.

(b) *Part 22 licensing, construction and operation rules apply*. Licensing, construction and operation of paging stations on the exclusive channels in the 929–930 MHz band are subject to the application filing, licensing procedure, auction procedure, construction, operation and notification rules and requirements that are set forth in part 22

of this chapter for paging stations operating in the 931–932 MHz band, instead of procedures elsewhere in this part.

(c) *Part 22 power limits apply; type acceptance required.* Paging operations on the exclusive channels in the 929–930 MHz band are subject to the transmitting power limits set forth in part 22 of this chapter for paging stations operating in the 931–932 MHz band, instead of power limits elsewhere in this part. Transmitters used on the exclusive channels in the 929–930 MHz band must be of a type accepted under either part 22 of this chapter or this part (or both).

[62 FR 11636, Mar. 12, 1997]

§ 90.494 Paging operations on shared channels in the 929–930 MHz band.

(a) This section applies to licensing of paging stations on the shared (nonexclusive) channels in the 929–930 MHz band. The center frequencies of these channels are listed in paragraph (b) of this section.

(b) The following frequencies are available to all eligible part 90 users for one-way paging systems on a shared basis only and will not be assigned for the exclusive use of any licensee.

929.0375	929.1625
929.0625	929.2625
929.0875	

(c) All frequencies listed in this section may be used to provide one-way paging communications to persons eligible for licensing under subpart B or C of this part, representatives of Federal Government agencies, individuals, and foreign governments and their representatives. The provisions of § 90.173(b) apply to all frequencies listed in this section.

(d) Licensees on these frequencies may utilize any type of paging operation desired (tone only, tone-voice, digital, tactile, optical readout, etc.).

(e) There shall be no minimum or maximum loading standards for these frequencies.

(f) The effective radiated power for base stations providing paging service on the shared channels must not exceed 3500 watts.

[58 FR 62291, Nov. 26, 1993, as amended at 59 FR 59966, Nov. 21, 1994; 61 FR 8483, Mar. 5, 1996; 62 FR 11637, Mar. 12, 1997; 62 FR 18934, Apr. 17, 1997; 66 FR 57885, Nov. 19, 2001]

Subpart Q [Reserved]

Subpart R—Regulations Governing the Licensing and Use of Frequencies in the 763–775 and 793–805 MHz Bands

SOURCE: 63 FR 58651, Nov. 2, 1998, unless otherwise noted.

§ 90.521 Scope.

This subpart sets forth the regulations governing the licensing and operations of all systems operating in the 758–775 MHz and 788–805 MHz frequency bands. It includes eligibility, operational, planning and licensing requirements and technical standards for stations licensed in these bands. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in these frequency bands.

[63 FR 58651, Nov. 2, 1998, as amended at 72 FR 48860, Aug. 24, 2007; 77 FR 62463, Oct. 15, 2012]

§ 90.523 Eligibility.

This section implements the definition of public safety services contained in 47 U.S.C. 337(f)(1). The following are eligible to hold Commission authorizations for systems operating in the 769–775 MHz and 799–805 MHz frequency bands:

(a) *State or local government entities.* Any territory, possession, state, city, county, town, or similar State or local governmental entity is eligible to hold authorizations in the 764–776 MHz and 794–806 MHz frequency bands.

(b) *Nongovernmental organizations.* A nongovernmental organization (NGO) that provides services, the sole or principal purpose of which is to protect the safety of life, health, or property, is eligible to hold an authorization for a system operating in the 764–776 MHz

and 794–806 MHz frequency bands for transmission or reception of communications essential to providing such services if (and only for so long as) the NGO applicant/licensee:

(1) Has the ongoing support (to operate such system) of a state or local governmental entity whose mission is the oversight of or provision of services, the sole or principal purpose of which is to protect the safety of life, health, or property;

(2) Operates such authorized system solely for transmission of communication essential to providing services the sole or principal purpose of which is to protect the safety of life, health, or property; and

(3) All applications submitted by NGOs must be accompanied by a new, written certification of support (for the NGO applicant to operate the applied-for system) by the state or local governmental entity referenced in paragraph (b)(1) of this section.

(c) *All NGO authorizations are conditional.* NGOs assume all risks associated with operating under conditional authority. Authorizations issued to NGOs to operate systems in the 764–776 MHz and 794–806 MHz frequency bands include the following condition: If at any time the supporting governmental entity (see paragraph (b)(1)) notifies the Commission in writing of such governmental entity's termination of its authorization of a NGO's operation of a system in the 764–776 MHz and 794–806 MHz frequency bands, the NGO's application shall be dismissed automatically or, if authorized by the Commission, the NGO's authorization shall terminate automatically.

(d) Paragraphs (a) and (b) notwithstanding, no entity is eligible to hold an authorization for a system operating in the 764–776 MHz and 794–806 MHz frequency bands on the basis of services, the sole or principal purpose of which is to protect the safety of life, health or property, that such entity makes commercially available to the public.

(e) A nationwide license for the 758–769 MHz and 788–799 MHz bands shall be issued to the First Responder Network Authority.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53645, Sept. 5, 2000; 72 FR 48860, Aug. 24, 2007; 79 FR 600, Jan. 6, 2014]

§ 90.525 Administration of interoperability channels.

(a) States are responsible for administration of the Interoperability channels in the 769–775 MHz and 799–805 MHz frequency bands. Base and control stations must be licensed individually. A public safety entity meeting the requirements of § 90.523 may operate mobile or portable units on the Interoperability channels in the 769–775 MHz and 799–805 MHz frequency bands without a specific authorization from the Commission provided it holds a part 90 license. All persons operating mobile or portable units under this authority are responsible for compliance with part 90 of these rules and other applicable federal laws.

(b) License applications for Interoperability channels in the 769–775 MHz and 799–805 MHz frequency bands must be approved by a state-level agency or organization responsible for administering state emergency communications. States may hold the licenses for Interoperability channels or approve other qualified entities to hold such licenses. States may delegate the approval process for interoperability channels to another entity, such as regional planning committees.

[72 FR 48860, Aug. 24, 2007]

§ 90.527 Regional plan requirements.

Each regional planning committee must submit a regional plan for approval by the Commission.

(a) *Common elements.* Regional plans must incorporate the following common elements:

(1) Identification of the document as the regional plan for the defined region with the names, business addresses, business telephone numbers, and organizational affiliations of the chairpersons and all members of the planning committee.

(2) A summary of the major elements of the plan and an explanation of how all eligible entities within the region

were given an opportunity to participate in the planning process and to have their positions heard and considered fairly.

(3) A general description of how the spectrum would be allotted among the various eligible users within the region with an explanation of how the requirements of all eligible entities within the region were considered and, to the degree possible, met.

(4) An explanation as to how needs were assigned priorities in areas where not all eligible entities could receive licenses.

(5) An explanation of how the plan had been coordinated with adjacent regions.

(6) A detailed description of how the plan put the spectrum to the best possible use by requiring system design with minimum coverage areas, by assigning frequencies so that maximum frequency reuse and offset channel use may be made, by using trunking, and by requiring small entities with minimal requirements to join together in using a single system where possible.

(7) A detailed description of the future planning process, including, but not limited to, amendment process, meeting announcements, data base maintenance, and dispute resolution.

(8) A certification by the regional planning chairperson that all planning committee meetings, including subcommittee or executive committee meetings, were open to the public.

(b) *Modification of regional plans*. Regional plans may be modified by submitting a written request, signed by the regional planning committee, to the Chief, Public Safety and Homeland Security Bureau. The request must contain the full text of the modification. Modifications are considered either major or minor. Regional planning committees must certify that successful coordination with all adjacent regions has occurred for major modifications and that all such regions concur with the major modification. Unless requested otherwise by the regional planning committee, the Bureau will only place major modifications on public notice for comment.

(1) Except as noted below, modifications changing the way channels are allocated, allotted or coordinated are considered major modifications.

(2) Modifications changing how channels are allotted are considered minor modifications only if:

(i) The proposed channel change or channel addition involves a facility located more than seventy miles from the adjacent region border;

(ii) The co-channel or adjacent channel interference contour of the facility changing or adding the channel does not intersect the border of an adjacent region, or

(iii) The proposed channel change or channel addition has been coordinated in writing with any affected adjacent region.

(3) Changes in membership or leadership of regional planning committees are considered minor modifications.

[63 FR 58651, Nov. 2, 1998, as amended at 79 FR 39339, July 10, 2014]

§ 90.529 State License.

(a) Narrowband channels designated as state channels in § 90.531 are licensed to each state (as defined in § 90.7) as follows:

(1) Each state that chooses to take advantage of the spectrum designated as state channels must file an application for up to 2.4 megahertz of this spectrum no later than December 31, 2001. For purposes of this section, the elected chief executive (Governor) of each state, or his or her designee, shall be deemed the person authorized to apply for the State License.

(2) What ever part of this 2.4 megahertz that a state has not applied for by December 31, 2001, will revert to General Use and be administered by the relevant RPC (or RPCs in the instances of states that encompass multiple RPCs).

(b) Each state license will be granted subject to the condition that the state certifies on or before each applicable benchmark date that it is:

(1) Providing or prepared to provide ''substantial service'' to one-third of their population or territory by June 13, 2014, i.e., within five years of the date that incumbent broadcasters are required to relocate to other portions of the spectrum;

(2) Providing or prepared to provide ''substantial service'' to two-thirds of

their population or territory by June 13, 2019, i.e., within ten years of the date that incumbent broadcasters are required to relocate to other portions of the spectrum.

(2) providing or prepared to provide ''substantial service'' to two-thirds of their population or territory by January 1, 2017, *i.e.*, within ten years of the date that incumbent broadcasters are required to relocate to other portions of the spectrum.

(c) The Commission will deem a state ''prepared to provide substantial service'' if the licensee certifies that a radio system has been approved and funded for implementation by the deadline date. ''Substantial service'' refers to the construction and operation of 700 MHz facilities by public safety entities providing service which is sound, favorable , and substantially above a level of mediocre service which just might minimally warrant renewal.

(d) If a state licensee fails to meet any condition of the grant the state license is modified automatically to the frequencies and geographic areas where the state certifies that it is providing substantial service.

(e) Any recovered state license spectrum will revert to General Use. However, spectrum licensed to a state under a state license remains unavailable for reassignment to other applicants until the Commission's database reflects the parameters of the modified state license.

[65 FR 66654, Nov. 7, 2000, as amended at 79 FR 20106, Apr. 11, 2014]

§ 90.531 Band plan.

This section sets forth the band plan for the 758–775 MHz and 788–805 MHz public safety bands.

(a) *Base and mobile use*. The 763–775 MHz band may be used for base, mobile or fixed (repeater) transmissions. The 793–805 MHz band may be used only for mobile or fixed (control) transmissions.

(b) *Narrowband segments*. There are two band segments that are designated for use with narrowband emissions. Each of these narrowband segments is divided into 960 channels having a channel size of 6.25 kHz as follows:

Frequency range	Channel Nos.
769–775 MHz	1–960
799–805 MHz	961–1920

(1) *Narrowband interoperability channels*. The following narrowband channels are designated for nationwide interoperability licensing and use: 23, 24, 39, 40, 63, 64, 79, 80, 103, 104, 119, 120,143, 144, 159, 160, 183, 184, 199, 200, 223, 224, 239, 240, 263, 264, 279, 280, 303, 304, 319, 320, 641, 642, 657, 658, 681, 682, 697, 698, 721, 722, 737, 738, 761, 762, 777, 778, 801, 802, 817, 818, 841, 842, 857, 858, 881, 882, 897, 898, 921, 922, 937, 938, 983, 984, 999, 1000, 1023, 1024, 1039, 1040, 1063, 1064, 1079, 1080, 1103, 1104, 1119, 1120, 1143, 1144, 1159, 1160, 1183, 1184, 1199, 1200, 1223, 1224, 1239, 1240, 1263, 1264, 1279, 1280, 1601, 1602, 1617, 1618, 1641, 1642, 1657, 1658, 1681, 1682, 1697, 1698, 1721, 1722, 1737, 1738, 1761, 1762, 1777, 1778, 1801, 1802, 1817, 1818, 1841, 1842, 1857, 1858, 1881, 1882, 1897, 1898.

(i) *Narrowband data Interoperability channels*. The following channel pairs are reserved nationwide for the express purpose of data transmission only: 279/1239, 280/1240, 921/1881, and 922/1882.

(ii) *Narrowband calling Interoperability channels*. The following channel pairs are dedicated nationwide for the express purpose of *Interoperability* calling only: 39/999, 40/1000, 681/1641, and 682/1642. They may not be used primarily for routine, day-to-day communications. Encryption is prohibited on the designated calling channels.

(iii) *Narrowband trunking Interoperability channels*. The following Interoperability channel pairs may be combined with the appropriate adjacent secondary trunking channel pairs and used in trunked mode on a secondary basis to conventional Interoperability operations: 23/983, 24/984, 103/1063, 104/1064, 183/1143, 184/1144, 263/1223, 264/1224, 657/1617, 658/1618, 737/1697, 738/1698, 817/1777, 818/1778, 897/1857, 898/1858. For every ten general use channels trunked at a station, entities may obtain a license to operate in the trunked mode on two of the above contiguous Interoperability channel pairs. The maximum number of Interoperability channel pairs that can be trunked at any one location is eight.

(2) Narrowband reserve channels. The following narrowband channels are undesignated and reserved: 37, 38, 61, 62, 77, 78, 117, 118, 141, 142, 157, 158, 197, 198,

221, 222, 237, 238, 277, 278, 301, 302, 317, 318, 643, 644, 683, 684, 699, 700, 723, 724, 763, 764, 779, 780, 803, 804, 843, 844, 859, 860, 883, 884, 923, 924, 939, 940, 997, 998, 1021, 1022, 1037, 1038, 1077, 1078, 1101, 1102, 1117, 1118, 1157, 1158, 1181, 1182, 1197, 1198, 1237, 1238, 1261, 1262, 1277, 1278, 1603, 1604, 1643, 1644, 1659, 1660, 1683, 1684, 1723, 1724, 1739, 1740, 1763, 1764, 1803, 1804, 1819, 1820, 1843, 1844, 1883, 1884, 1899, 1900.

(3) *Narrowband low power channels subject to regional planning.* The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved regional planning committee regional plans. Transmitter power must not exceed 2 watts (ERP): Channels 1–8 paired with Channels 961–968, and Channels 949–958 paired with Channels 1909–1918.

(4) *Narrowband low power itinerant channels.* The following narrowband channels are designated for low power use for on-scene incident response purposes using mobiles and portables. These channels are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP): Channels 9–12 paired with Channels 969–972 and Channels 959–960 paired with Channels 1919–1920.

(5) *Narrowband state channels.* The following narrowband channels are designated for direct licensing to each state (including U.S. territories, districts, and possessions): 25–36, 65–76, 105–116, 145–156, 185–196, 225–236, 265–276, 305–316, 645–656, 685–696, 725–736, 765–776, 805–816, 845–856, 885–896, 925–936, 985–996, 1025–1036, 1065–1076, 1105–1116, 1145–1156, 1185–1196, 1225–1236, 1265–1276, 1605–1616, 1645–1656, 1685–1696, 1725–1736, 1765–1776, 1805–1816, 1845–1856, 1885–1896. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535(d).

(6) *Narrowband general use channels.* All narrowband channels established in paragraph (b) of this section, other than those listed in paragraphs (b)(1), (b)(2), (b)(4) and (b)(5) of this section are designated to public safety eligibles subject to Commission approved regional planning committee regional plans. Voice operations on these channels are subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535(d).

(7) *Secondary trunking channels.* The following channel pairs are reserved for secondary trunking operations: 21/981, 22/982, 101/1061, 102/1062, 181/1141, 182/1142, 261/1221, 262/1222, 659/1619, 660/1620, 739/1699, 740/1700, 819/1779, 820/1780, 899/1859, and 900/1860. They may be used only in combination with the appropriate adjacent Interoperability channel pairs specified in paragraph (b)(1)(iii) of this section in trunked systems.

(c) [Reserved]

(d) *Combining channels.* Except as noted in this section, at the discretion of the appropriate regional planning committee, contiguous channels may be used in combination in order to accommodate requirements for larger bandwidth emissions, in accordance with this paragraph. Interoperability channels may not be combined with channels in another group except for channels for secondary trunking channels.

(1) *Narrowband.* Subject to compliance with the spectrum usage efficiency requirements set forth in § 90.535, two or four contiguous narrowband (6.25 kHz) channels may be used in combination as 12.5 kHz or 25 kHz channels, respectively. The lower (in frequency) channel for two channel combinations must be an odd (*i.e.*, 1, 3, 5 * * *) numbered channel. The lowest (in frequency) channel for four channel combinations must be a channel whose number is equal to 1+(4xn), where n = any integer between 0 and 479, inclusive (*e.g.*, channel number 1, 5, * * * 1917). Channel combinations are designated by the lowest and highest channel numbers separated by a hyphen, *e.g.*, ''1–2'' for a two channel combination and ''1–4'' for a four channel combination.

(2) [Reserved]

(e) *Channel pairing.* In general, channels must be planned and assigned in base/mobile pairs that are separated by 30 MHz. However, until December 31, 2006, channels other than those listed in paragraphs (b)(1) and (c)(1), may be planned and assigned in base/mobile pairs having a different separation, where necessary because 30 MHz base/

mobile pairing is precluded by the presence of one or more co-channel or adjacent channel TV/DTV broadcast stations.

(f) *Internal guard band*. The internal guard band (768–769/798–799 MHz) is reserved.

(g) *Broadband*. The 758–768 MHz and 788–798 MHz bands are allocated for broadband communications.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 66654, Nov. 7, 2000; 66 FR 10635, 10636, Feb. 16, 2001; 67 FR 61005, Sept. 27, 2002; 67 FR 76700, Dec. 13, 2002; 72 FR 48860, Aug. 24, 2007; 77 FR 62463, Oct. 15, 2012]

§ 90.532 Licensing of the 758–769 MHz and 788–799 MHz Bands.

Pursuant to Section 6201 of the Middle Class Tax Relief and Job Creation Act of 2012, Public Law 112–96, 126 Stat. 156 (2012), a nationwide license for use of the 758–769 MHz and 788–799 MHz bands shall be issued to the First Responder Network Authority for a initial license term of ten years from the date of the initial issuance of the license. Prior to expiration of the term of such initial license, the First Responder Network Authority shall submit to the Commission an application for the renewal of such license. Such renewal application shall demonstrate that, during the preceding license term, the First Responder Network Authority has met the duties and obligations set forth under the foregoing Act. A renewal license shall be for a term not to exceed ten years.

[77 FR 62463, Oct. 15, 2012]

§ 90.533 Transmitting sites near the U.S./Canada or U.S./Mexico border.

This section applies to each license to operate one or more public safety transmitters in the 758–775 MHz and 788–805 MHz bands, at a location or locations North of Line A (see § 90.7) or within 120 kilometers (75 miles) of the U.S.-Mexico border, until such time as agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, become effective governing border area non-broadcast use of these bands. Public safety licenses are granted subject to the following conditions:

(a) Public safety transmitters operating in the 758–775 MHz and 788–805 MHz bands must conform to the limitations on interference to Canadian television stations contained in agreement(s) between the United States and Canada for use of television channels in the border area.

(b) Public safety facilities must accept any interference that may be caused by operations of UHF television broadcast transmitters in Canada and Mexico.

(c) Conditions may be added during the term of the license, if required by the terms of international agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, regarding non-broadcast use of the 758–775 MHz and 788–805 MHz bands.

[43 FR 54791, Nov. 22, 1978, as amended at 67 FR 76700, Dec. 13, 2002; 72 FR 48861, Aug. 24, 2007; 79 FR 600, Jan. 6, 2014]

§ 90.535 Modulation and spectrum usage efficiency requirements.

Transmitters designed to operate in 769–775 MHz and 799–805 MHz frequency bands must meet the following modulation standards:

(a) All transmitters in the 769–775 MHz and 799–805 MHz frequency bands must use digital modulation. Mobile and portable transmitters may have analog modulation capability only as a secondary mode in addition to its primary digital mode. Mobile and portable transmitters that only operate on the low power channels designated in §§ 90.531(b)(3), 90.531(b)(4), are exempt from this digital modulation requirement.

(b) Transmitters designed to operate in the narrowband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 4.8 kbps per 6.25 kHz of bandwidth.

(c) Transmitters designed to operate in the wideband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 384 kbps per 150 kHz of bandwidth.

(d) The following provisions apply to licensees operating in the channels designated in § 90.531(b)(5) or § 90.531(b)(6).

(1) With the exception of licensees designated in paragraph (d)(2) of this section, after December 31, 2014, licensees may only operate in voice mode in these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

(2) Licensees authorized to operate systems in the voice mode on these channels from applications filed on or before December 31, 2014, may continue operating in voice mode on these channels (including modification applications of such licenses granted after December 31, 2014, for expansion or maintenance of such systems) at a voice efficiency of at least one voice path per 12.5 kHz of spectrum bandwidth until December 31, 2016.

(3) The licensees designated in paragraph (d)(2) of this section must, no later than January 31, 2017, file a declaration through the Universal Licensing System that they are operating these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53645, Sept. 5, 2000; 65 FR 66655, Nov. 7, 2000; 67 FR 76701, Dec. 13, 2002; 70 FR 21673, Apr. 27, 2005; 72 FR 48861, Aug. 24, 2007]

§ 90.537 Trunking requirement.

(a) *General use and State License channels.* All systems using six or more narrowband channels in the 769–775 MHz and 799–805 MHz frequency bands must be trunked systems, except for those described in paragraph (b) of this section.

(b) *Interoperability and low power channels.* Trunking is permitted only on Interoperability channels specified in § 90.531(b)(1)(iii). Trunked use must be strictly on a secondary, non-interference basis to conventional operations. The licensee must monitor and immediately release these channels when they are needed for interoperability purposes. All systems using narrowband low power channels listed in § 90.531(b)(3) and (4) are exempt from the trunking requirements described in paragraph (a) of this section.

[79 FR 39340, July 10, 2014]

§ 90.539 Frequency stability.

Transmitters designed to operate in 769–775 MHz and 799–805 MHz frequency bands must meet the frequency stability requirements in this section.

(a) Mobile, portable and control transmitters must normally use automatic frequency control (AFC) to lock on to the base station signal.

(b) The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better.

(c) The frequency stability of mobile, portable, and control transmitters operating in the narrowband segment must be 400 parts per billion or better when AFC is locked to the base station. When AFC is not locked to the base station, the frequency stability must be at least 1.0 ppm for 6.25 kHz, 1.5 ppm for 12.5 kHz (2 channel aggregate), and 2.5 ppm for 25 kHz (4 channel aggregate).

(d) The frequency stability of base transmitters operating in the wideband segment must be 1 part per million or better.

(e) The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53646, Sept. 5, 2000; 72 FR 48861, Aug. 24, 2007]

§ 90.541 Transmitting power limits.

The transmitting power of base, mobile, portable and control stations operating in the 769–775 MHz and 799–805 MHz frequency bands must not exceed the maximum limits in this section, and must also comply with any applicable effective radiated power limits in § 90.545.

(a) The transmitting power of base transmitters must not exceed the limits given in paragraphs (a), (b) and (c) of § 90.635.

(b) The transmitter output power of mobile and control transmitters must not exceed 30 Watts.

(c) The transmitter output power of portable (hand-held) transmitters must not exceed 3 Watts.

(d) Transmitters operating on the narrowband low power channels listed in §§ 90.531(b)(3), 90.531(b)(4), must not exceed 2 watts (ERP).

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 66655, Nov. 7, 2000; 72 FR 48861, Aug. 24, 2007]

§ 90.542 Broadband transmitting power limits.

(a) The following power limits apply to the 758–768/788–798 MHz band:

(1) Fixed and base stations transmitting a signal in the 758–768 MHz band with an emission bandwidth of 1 MHz or less must not exceed an ERP of 1000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section.

(2) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal in the 758–768 MHz band with an emission bandwidth of 1 MHz or less must not exceed an ERP of 2000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts ERP in accordance with Table 2 of this section.

(3) Fixed and base stations transmitting a signal in the 758–768 MHz band with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP accordance with Table 3 of this section.

(4) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal in the 758–768 MHz band with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section.

(5) Licensees of fixed or base stations transmitting a signal in the 758–768 MHz band at an ERP greater than 1000 watts must comply with the provisions set forth in paragraph (b) of this section.

(6) Control stations and mobile stations transmitting in the 758–768 MHz band and the 788–798 MHz band are limited to 30 watts ERP.

(7) Portable stations (hand-held devices) transmitting in the 758–768 MHz band and the 788–798 MHz band are limited to 3 watts ERP.

(8) For transmissions in the 758–768 MHz and 788–798 MHz bands, licensees may employ equipment operating in compliance with either of the following measurement techniques:

(i) The maximum composite transmit power shall be measured over any interval of continuous transmission using instrumentation calibrated in terms of RMS-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, etc., so as to obtain a true maximum composite measurement for the emission in question over the full bandwidth of the channel.

(ii) A Commission-approved average power technique.

TABLE 1 TO § 90.542(a)—PERMISSIBLE POWER AND ANTENNA HEIGHTS FOR BASE AND FIXED STATIONS IN THE 758–768 MHZ BAND TRANSMITTING A SIGNAL WITH AN EMISSION BANDWIDTH OF 1 MHZ OR LESS

Antenna height (AAT) in meters (feet)	Effective radiated power (ERP) (watts)
Above 1372 (4500)	65
Above 1220 (4000) To 1372 (4500)	70
Above 1067 (3500) To 1220 (4000)	75
Above 915 (3000) To 1067 (3500)	100
Above 763 (2500) To 915 (3000)	140
Above 610 (2000) To 763 (2500)	200
Above 458 (1500) To 610 (2000)	350
Above 305 (1000) To 458 (1500)	600
Up to 305 (1000)	1000

TABLE 2 TO § 90.542(a)—PERMISSIBLE POWER AND ANTENNA HEIGHTS FOR BASE AND FIXED STATIONS IN THE 758–768 MHZ BAND TRANSMITTING A SIGNAL WITH AN EMISSION BANDWIDTH OF 1 MHZ OR LESS

Antenna height (AAT) in meters (feet)	Effective radiated power (ERP) (watts)
Above 1372 (4500)	130
Above 1220 (4000) To 1372 (4500)	140
Above 1067 (3500) To 1220 (4000)	150
Above 915 (3000) To 1067 (3500)	200
Above 763 (2500) To 915 (3000)	280
Above 610 (2000) To 763 (2500)	400
Above 458 (1500) To 610 (2000)	700
Above 305 (1000) To 458 (1500)	1200
Up to 305 (1000)	2000

TABLE 3 TO § 90.542(a)—PERMISSIBLE POWER AND ANTENNA HEIGHTS FOR BASE AND FIXED STATIONS IN THE 758–768 MHZ BAND TRANSMITTING A SIGNAL WITH AN EMISSION BANDWIDTH GREATER THAN 1 MHZ

Antenna height (AAT) in meters (feet)	Effective radiated power (ERP) per MHz (watts/MHz)
Above 1372 (4500)	65
Above 1220 (4000) To 1372 (4500)	70
Above 1067 (3500) To 1220 (4000)	75
Above 915 (3000) To 1067 (3500)	100
Above 763 (2500) To 915 (3000)	140
Above 610 (2000) To 763 (2500)	200
Above 458 (1500) To 610 (2000)	350
Above 305 (1000) To 458 (1500)	600
Up to 305 (1000)	1000

TABLE 4 TO § 90.542(a)—PERMISSIBLE POWER AND ANTENNA HEIGHTS FOR BASE AND FIXED STATIONS IN THE 758–768 MHZ BAND TRANSMITTING A SIGNAL WITH AN EMISSION BANDWIDTH GREATER THAN 1 MHZ

Antenna height (AAT) in meters (feet)	Effective radiated power (ERP) per MHz (watts/MHz)
Above 1372 (4500)	130
Above 1220 (4000) To 1372 (4500)	140
Above 1067 (3500) To 1220 (4000)	150
Above 915 (3000) To 1067 (3500)	200
Above 763 (2500) To 915 (3000)	280
Above 610 (2000) To 763 (2500)	400
Above 458 (1500) To 610 (2000)	700
Above 305 (1000) To 458 (1500)	1200
Up to 305 (1000)	2000

(b) For base and fixed stations operating in the 758–768 MHz band in accordance with the provisions of paragraph (a)(5) of this section, the power flux density that would be produced by such stations through a combination of antenna height and vertical gain pattern must not exceed 3000 microwatts per square meter on the ground over the area extending to 1 km from the base of the antenna mounting structure.

[72 FR 48861, Aug. 24, 2007, as amended at 79 FR 600, Jan. 6, 2014]

§ 90.543 Emission limitations.

Transmitters designed to operate in 769–775 MHz and 799–805 MHz frequency bands must meet the emission limitations in paragraphs (a) through (d) of this section. Transmitters operating in 758–768 MHz and 788–798 MHz bands must meet the emission limitations in (e) of this section.

(a) The adjacent channel power (ACP) requirements for transmitters designed for various channel sizes are shown in the following tables. Mobile station requirements apply to handheld, car mounted and control station units. The tables specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the following tables, ''(s)'' indicates a swept measurement may be used.

6.25 kHz MOBILE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
6.25	6.25	−40
12.5	6.25	−60
18.75	6.25	−60
25.00	6.25	−65
37.50	25.00	−65
62.50	25.00	−65
87.50	25.00	−65
150.00	100.00	−65
250.00	100.00	−65
350.00	100.00	−65
>400 kHz to 12 MHz	30 (s)	−75
12 MHz to paired receive band	30 (s)	−75
In the paired receive band	30 (s)	−100

12.5 kHz MOBILE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
9.375	6.25	−40
15.625	6.25	−60
21.875	6.25	−60
37.50	25.00	−60
62.50	25.00	−65
87.50	25.00	−65

12.5 kHz Mobile Transmitter ACP Requirements—Continued

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
150.00	100	−65
250.00	100	−65
350.00	100	−65
>400 to 12 MHz	30 (s)	−75
12 MHz to paired receive band	30 (s)	−75
In the paired receive band	30 (s)	−100

25 kHz Mobile Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP relative (dBc)
15.625	6.25	−40
21.875	6.25	−60
37.50	25	−60
62.50	25	−65
87.50	25	−65
150.00	100	−65
250.00	100	−65
350.00	100	−65
>400 kHz to 12 MHz	30 (s)	−75
12 MHz to paired receive band	30 (s)	−75
In the paired receive band	30 (s)	−100

6.25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
6.25	6.25	−40
12.50	6.25	−60
18.75	6.25	−60
25.00	6.25	−65
37.50	25	−65
62.50	25	−65
87.50	25	−65
150.00	100	−65
250.00	100	−65
350.00	100	−65
>400 to 12 MHz	30 (s)	−80
12 MHz to paired receive band	30 (s)	−80
In the paired receive band	30 (s)	[1] −85

[1] Although we permit individual base transmitters to radiate a maximum ACP of –85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of –100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

12.5 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
9.375	6.25	−40
15.625	6.25	−60
21.875	6.25	−60

12.5 kHz Base Transmitter ACP Requirements—Continued

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
37.5	25	−60
62.5	25	−65
87.5	25	−65
150	100	−65
250	100	−65
350.00	100	−65
>400 kHz to 12 MHz	30 (s)	−80
12 MHz to paired receive band	30 (s)	−80
In the paired receive band	30 (s)	[1] −85

[1] Although we permit individual base transmitters to radiate a maximum ACP of –85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of –100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

25 kHz Base Transmitter ACP Requirements

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	−40
21.875	6.25	−60
37.5	25	−60
62.5	25	−65
87.5	25	−65
150	100	−65
250	100	−65
350	100.00	−65
>400 kHz to 12 MHz	30 (s)	−80
12 MHz to paired receive band	30 (s)	−80
In the paired receive band	30 (s)	[1] −85

[1] Although we permit individual base transmitters to radiate a maximum ACP of –85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of –100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

(b) *ACP measurement procedure*. The following are the procedures for making the transmitter ACP measurements. For all measurements modulate the transmitter as it would be modulated in normal operating conditions. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is active. All measurements are made at the transmitter's output port. If a transmitter has an integral antenna, a suitable power coupling device shall be used to couple the RF signal to

the measurement instrument. The coupling device shall substantially maintain the proper transmitter load impedance. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. ''Measurement bandwidth'', as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

(1) *Setting reference level.* Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter set the measurement bandwidth to 6.25 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the ''reference power level.''

(2) *Non-swept power measurement.* Using a spectrum analyzer capable of ACP measurements, set the mesurement bandwidth and frequency offset from the assigned center frequency as shown in the tables in § 90.543 (a) above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3) *Swept power measurement.* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(c) *Out-of-band emission limit.* On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P) by at least 43 + 10log (P) dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

(d) *Authorized bandwidth.* Provided that the ACP requirements of this section are met, applicants may request any authorized bandwidth that does not exceed the channel size.

(e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

(g) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

[70 FR 21666, Apr. 27, 2005, as amended at 72 FR 48862, Aug. 24, 2007; 79 FR 600, Jan. 6, 2014; 79 FR 39340, July 10, 2014]

§ 90.545 TV/DTV interference protection criteria.

Public safety base, control, and mobile transmitters in the 769–775 MHz and 799–805 MHz frequency bands must be operated only in accordance with the rules in this section, to reduce the potential for interference to public reception of the signals of existing TV and DTV broadcast stations transmitting on TV Channels 62, 63, 64, 65, 67, 68 or 69.

(a) *D/U ratios*. Licensees of public safety stations must choose site locations that are a sufficient distance from co-channel and adjacent channel TV and DTV stations, and/or must use reduced transmitting power or transmitting antenna height such that the following minimum desired signal to undesired signal ratios (D/U ratios) are met:

(1) The minimum D/U ratio for co-channel stations is 40 dB at the hypothetical Grade B contour (64 dBμV/m) (88.5 kilometers or 55.0 miles) of the TV station or 17 dB at the equivalent Grade B contour (41 dBμV/m) (88.5 kilometers or 55.0 miles) of the DTV station.

(2) The minimum D/U ratio for adjacent channel stations is 0 dB at the hypothetical Grade B contour (64 dBμV/m) (88.5 kilometers or 55.0 miles) of the TV station or −23 dB at the equivalent Grade B contour (41 dBμV/m) (88.5 kilometers or 55.0 miles) of the DTV station.

(b) *Maximum ERP and HAAT*. The maximum effective radiated power (ERP) and the antenna height above average terrain (HAAT) of the proposed land mobile base station, the associated control station, and the mobile transmitters shall be determined using the methods described in this section.

(1) Each base station is limited to a maximum ERP of 1000 watts.

(2) Each control station is limited to a maximum ERP of 200 watts and a maximum HAAT of 61 m. (200 ft).

(3) Each mobile station is limited to a maximum ERP of 30 watts and a maximum antenna height of 6.1 m. (20 ft.).

(4) Each portable (handheld) transmitter is limited to a maximum ERP of 3 watts.

(5) All transmitters are subject to the power reductions given in Figure B of § 90.309 of this chapter, for antenna heights higher than 152 meters (500 ft).

(c) *Methods*. The methods used to calculate TV contours and antenna heights above average terrain are given in §§ 73.683 and 73.684 of this chapter. Tables to determine the necessary minimum distance from the public safety station to the TV/DTV station, assuming that the TV/DTV station has a hypothetical or equivalent Grade B contour of 88.5 kilometers (55.0 miles), are located in § 90.309 and labeled as Tables B, D, and E. Values between those given in the tables may be determined by linear interpolation. The locations of existing and proposed TV/DTV stations during the transition period are given in part 73 of this chapter and in the final proceedings of MM Docket No. 87–268. The DTV allotments are:

State	City	NTSC TV Ch.	DTV Ch.	ERP (kW)	HAAT (m)
California	Stockton	64	62	63.5	874
California	Los Angeles	11	65	688.7	896
California	Riverside	62	68	180.1	723
California	Concord	42	63	61.0	856
Pennsylvania	Allentown	39	62	50.0	302

State	City	NTSC TV Ch.	DTV Ch.	ERP (kW)	HAAT (m)
Pennsylvania	Philadelphia	6	64	1000.0	332
Pennsylvania	Philadelphia	10	67	791.8	354
Puerto Rico	Aguada	50	62	50.0	343
Puerto Rico	Mayaguez	16	63	50.0	347
Puerto Rico	Naranjito	64	65	50.0	142
Puerto Rico	Aguadilla	12	69	691.8	665

The transition period is scheduled to end on December 31, 2006. After that time, unless otherwise directed by the Commission, public safety stations will no longer be required to protect reception of co-channel or adjacent channel TV/DTV stations.

(1) Licensees of stations operating within the ERP and HAAT limits of paragraph (b) must select one of three methods to meet the TV/DTV protection requirements, subject to Commission approval:

(i) utilize the geographic separation specified in the tables referenced below;

(ii) Submit an engineering study justifying the proposed separations based on the parameters of the land mobile station and the parameters, including authorized and/or applied for facilities, of the TV/DTV station(s) it is trying to protect; or,

(iii) obtain written concurrence from the applicable TV/DTV station(s). If this method is chosen, a copy of the agreement must be submitted with the application.

(2) The following is the method for geographic separations.

(i) Base stations having an antenna height (HAAT) less than 152 m. (500 ft.) shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table B (co-channel frequencies based on 40 dB protection) and Table E (adjacent channel frequencies based on 0 dB protection) in § 90.309 of this part. For base stations having an antenna height (HAAT) between 152–914 meters (500–3,000 ft.) the effective radiated power must be reduced below 1 kilowatt in accordance with the values shown in the power reduction graph in Figure B in § 90.309 of this part. For heights of more than 152 m. (500 ft.) above average terrain, the distance to the radio path horizon will be calculated assuming smooth earth. If the distance so determined equals or exceeds the distance to the hypothetical or equivalent Grade B contour of a co-channel TV/DTV station (*i.e.*, it exceeds the distance from the appropriate Table in § 90.309 to the relevant TV/DTV station) an authorization will not be granted unless it can be shown in an engineering study (method 2) that actual terrain considerations are such as to provide the desired protection at the actual Grade B contour (64 dBμV/m for TV and 41 dBμV/m for DTV stations), or that the effective radiated power will be further reduced so that, assuming free space attenuation, the desired protection at the actual Grade B contour (64 dBμV/m for TV and 41 dBμV/m coverage contour for DTV stations) will be achieved. Directions for calculating powers, heights, and reduction curves are listed in § 90.309 for land mobile stations. Directions for calculating coverage contours are listed in §§ 73.683–685 for TV stations and in § 73.625 for DTV stations.

(ii) Control and mobile stations (including portables) are limited in height and power and therefore shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection) in § 90.309 of this part and a minimum distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV stations and—23 dB for DTV stations). Since control and mobile stations may affect different TV/DTV stations than the associated base station, particular care must be taken by applicants to ensure that all the appropriate TV/DTV stations are considered (*e.g.*, a base station may be operating on TV Channel 64 and the mobiles on TV Channel 69, in which case TV Channels 63, 64, 65, 68, and 69

must be protected). Since mobiles and portables are able to move and communicate with each other, licensees or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

(iii) In order to protect certain TV/DTV stations and to ensure protection from these stations which may have extremely large contours due to unusual height situations, an additional distance factor must be used by all public safety base, control and mobile stations. For all co-channel and adjacent channel TV/DTV stations which have an HAAT between 350 and 600 meters, public safety stations must add the following DISTANCE FACTOR to the value obtained from the referenced Tables in § 90.309 and to the distance for control and mobile stations on adjacent TV/DTV channels (96.5 km).

DISTANCE FACTOR = (TV/DTV HAAT − 350) ÷ 14 in kilometers, where HAAT is the TV or DTV station antenna height above average terrain obtained from its authorized or proposed facilities, whichever is greater.

(iv) For all co-channel and adjacent channel TV/DTV stations which have an antenna height above average terrain greater than 600 meters, public safety stations must add 18 kilometers as the DISTANCE FACTOR to the value obtained from the referenced Tables in § 90.309 and to the distance for control and mobile stations on adjacent TV/DTV channels (96.5 km).

NOTE TO § 90.545: The 88.5 km (55.0 mi) Grade B service contour (64 dBμV/m) is based on a hypothetical TV station operating at an effective radiated power of one megawatt, a transmitting antenna height above average terrain of 610 meters (2000 feet) and the Commission's R–6602 F(50,50) curves. *See* § 73.699 of this chapter. Maximum facilities for TV stations operating in the UHF band are 5 megawatts effective radiated power at an antenna HAAT of 610 meters (2,000 feet). *See* § 73.614 of this chapter. The equivalent contour for DTV stations is based on a 41 dBμV/m signal strength and the distance to the F(50,90) curve. *See* § 73.625 of this chapter.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53646, Sept. 5, 2000; 69 FR 59536, Oct. 4, 2004; 72 FR 67577, Nov. 29, 2007]

§ 90.547 Narrowband Interoperability channel capability requirement.

(a) Except as noted in this section, mobile and portable transmitters operating on narrowband channels in the 769–775 MHz and 799–805 MHz frequency bands must be capable of operating on all of the designated nationwide narrowband Interoperability channels pursuant to the standards specified in this part.

(1) Mobile and portable transmitters that are designed to operate only on the Low Power Channels specified in § 90.531 (b)(3) and (4) are exempt from this Interoperability channel requirement.

(2) Mobile and portable transmitters that are designed to operate only in the data mode must be capable of operation on the data Interoperability channels specified in § 90.531(b)(1)(i); but need not be capable of voice operation on other Interoperability channels.

(3) Mobile and portable transmitters that are designed to operate only in the voice mode do not have to operate on the data Interoperability channels specified in § 90.531(b)(1)(i).

(b) Mobile and portable transmitters designed for data are not required to be voice capable, and vice versa.

[67 FR 61005, Sept. 27, 2002, as amended at 72 FR 48863, Aug. 24, 2007]

§ 90.548 Interoperability Technical Standards.

(a) Transmitters designed after August 11, 2014 to operate on the narrowband interoperability achannels in the 769–775 and 799–805 MHz band (*see* § 90.531) shall conform to the following technical standards (transmitters certified prior to this date are grandfathered):

(1) Transmitters designed for voice operation shall include a 12.5 kilohertz bandwidth mode of operation conforming to the following standards: ANSI/TIA–102.BAAA–A–2003 and ANSI/TIA–102.BABA–2003.

(2) Transmitters designed for data transmission shall include a 12.5 kilohertz bandwidth mode of operation conforming to the following standards: ANSI/TIA–102.BAEA–B–2012, ANSI/TIA–102.BAAA–A–2003, ANSI/TIA–102.BAEB–

A–2005, and ANSI/TIA–102.BAEE–B–2010.

(b) The Director of the Federal Register approves these incorporations by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Material incorporated by reference may be inspected at the Federal Communications Commission, 445 12th Street SW., Washington, DC (Reference Information Center) [202–418–0270] or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*.

(1) TIA/EIA, 2500 Wilson Boulevard, Arlington, VA 22201 703–907–7974. These standards are also available from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; or the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036, *www.ansi.org*.

(i) ANSI/TIA–102.BAAA–A–2003, Project 25 FDMA–Common Air Interface, approved September 2003.

(ii) ANSI/TIA–102.BABA–2003, Project 25 Vocoder Description, approved December 2003.

(iii) ANSI/TIA–102.BAEA–B–2012, Project 25 Data Overview—New Technology Standards Project—Digital Radio Technical Standards, approved June 2012.

(iv) ANSI/TIA–102.BAEB–A–2005, Project 25 Packet Data Specification—New Technology Standards Project—Digital Radio Technical Standards, approved March 2005.

(v) ANSI/TIA–102.BAEE–B–2010, Project 25 Radio Management Protocols—New Technology Standards Project—Digital Radio Technical Standards, approved May 2010.

(2) [Reserved]

[79 FR 39340, July 10, 2014]

§ 90.549 Transmitter certification.

Transmitters operated in the 758–775 MHz and 788–805 MHz frequency bands must be of a type that have been authorized by the Commission under its certification procedure as required by § 90.203.

[79 FR 600, Jan. 6, 2014]

§ 90.551 Construction requirements.

Each station authorized under this subpart to operate in the 769–775 MHz and 799–805 MHz frequency bands must be constructed and placed into operation within 12 months from the date of grant of the authorization, except for State channels. However, licensees may request a longer construction period, up to but not exceeding 5 years, pursuant to § 90.155(b). State channels are subject to the build-out requirements in § 90.529.

[72 FR 48863, Aug. 24, 2007]

§ 90.553 Encryption.

(a) Encryption is permitted on all but the two nationwide Interoperability calling channels. Radios employing encryption must have a readily accessible switch or other readily accessible control that permits the radio user to disable encryption.

(b) If encryption is employed, then transmitters manufactured after August 11, 2014 must use the Advanced Encryption Standard (AES) specified in ANSI/TIA–102.AAAD–A: Project 25 Digital Land Mobile Radio-Block Encryption Protocol, approved August 20, 2009 Until 2030, manufacturers may also include the Digital Encryption Standard (DES) or Triple Data Encryption Algorithm (TDEA), in addition to but not in place of AES, for compatibility with legacy radios that lack AES capability. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. The standard can also be purchased from TIA/EIA, 2500 Wilson Boulevard, Arlington, VA 22201 703–907–7974; Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; or the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036, *www.ansi.org*. Material incorporated by reference may be inspected at the Federal Communications Commission, 445 12th Street SW., Washington, DC (Reference Information Center) 202–418–0270 or at the

National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*.

(c) The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the standard listed in this section that are incorporated by reference may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC (Reference Information Center) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. The standard can also be purchased from TIA/EIA, 2500 Wilson Boulevard, Arlington, VA, 22201; Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; or the American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036 (or via the Internet at *www.ansi.org*.)

[66 FR 10636, Feb. 16, 2001, as amended at 67 FR 61006, Sept. 26, 2002; 79 FR 39341, July 10, 2014]

§ 90.555 Information exchange.

(a) *Prior notification*. Public safety licensees authorized to operate in the 758–775 MHz and 788–805 MHz bands may notify any licensee authorized to operate in the 746–757 MHz or 776–787 MHz bands that they wish to receive prior notification of the activation or modification of the licensee's base or fixed stations in their area. Thereafter, the 746–757 MHz or 776–787 MHz band licensee must provide the following information to the public safety licensee at least 10 business days before a new base or fixed station is activated or an existing base or fixed station is modified:

(1) Location;

(2) Effective radiated power;

(3) Antenna height; and

(4) Channels available for use.

(b) *Purpose of prior notification*. The prior coordination of base or fixed stations is for informational purposes only. Public safety licensees are not afforded the right to accept or reject the activation of a proposed base or fixed station or to unilaterally require changes in its operating parameters. The principal purposes of notification are to:

(1) Allow a public safety licensee to advise the 746–757 or 776–787 MHz band licensee whether it believes a proposed base or fixed station will generate unacceptable interference;

(2) Permit 746–757 and 776–787 MHz band licensees to make voluntary changes in base or fixed station parameters when a public safety licensee alerts them to possible interference; and,

(3) Rapidly identify the source if interference is encountered when the base or fixed station is activated.

(c) *Public Safety Information Exchange*. (1) Upon request by a 746–757 or 776–787 MHz band licensee, public safety licensees authorized to operate radio systems in the 758–775 and 788–805 MHz bands shall provide the operating parameters of their radio system to the 746–757 or 776–787 MHz band licensee.

(2) Public safety licensees who perform the information exchange described in this section must notify the appropriate 746–757 or 776–787 MHz band licensees prior to any technical changes to their radio system.

[72 FR 27713, May 16, 2007, as amended at 72 FR 67578, Nov. 29, 2007; 79 FR 601, Jan. 6, 2014]

§ 90.557 Secondary fixed signaling operations.

Trunked and conventional 700 MHz narrowband systems may conduct fixed ancillary signaling and data transmissions subject to the following requirements:

(a) Operations are permitted only on:

(1) Narrowband State License channels specified in § 90.531(b)(5), subject to the discretion of the relevant State licensee; and

(2) Narrowband General Use channels specified in § 90.531(b)(6), subject to the discretion of the regional planning committee.

(b) All operations must be on a secondary, non-interference basis to the primary mobile operation of any other licensee.

(c) The output power at the remote site must not exceed 30 watts.

(d) Automatic means must be provided to deactivate the remote transmitter in the event the carrier remains on for a period in excess of three minutes.

(e) Operational fixed stations authorized pursuant to this section are exempt from the requirements of §§ 90.425, 90.429, and 90.559.

(f) Any operations undertaken in a shared use environment must be conducted pursuant to an agreement between the licensee and each participant, as set forth in § 90.179.

[79 FR 39341, July 10, 2014]

§ 90.559 Station Identification.

(a) Conventional systems of communication shall be identified in accordance with existing regulations governing such matters.

(b) Trunked systems of communication, except as noted in paragraph (c) of this section, shall be identified through the use of an automatic device which transmits the call sign of the base station facility at 30 minute intervals. Such station identification shall be made on the lowest frequency in the base station trunk group assigned the licensee. Should this frequency be in use at the time station identification is required, such identification may be made at the termination of the communication in progress on this frequency. Identification may be made by voice or International Morse Code. When the call sign is transmitted in International Morse Code, it must be at a rate of between 15 to 20 words per minute and by means of tone modulation of the transmitter, the tone frequency being between 800 and 1000 hertz.

(c) Stations operating in the 769–775/799–805 MHz band that are licensed on an exclusive basis, and normally employ digital signals for the transmission of data, text, control codes, or digitized voice may also be identified by digital transmission of the call sign. A licensee that identifies its station in this manner must provide the Commission, upon its request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

[79 FR 39341, July 10, 2014]

Subpart S—Regulations Governing Licensing and Use of Frequencies in the 806–824, 851–869, 896–901, and 935–940 MHz Bands

§ 90.601 Scope.

This subpart sets out the regulations governing the licensing and operations of all systems operating in the 806–824/851–869 MHz and 896–901/935–940 MHz bands. It includes eligibility requirements, and operational and technical standards for stations licensed in these bands. It also supplements the rules regarding application procedures contained in part 1, subpart F of this chapter. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in these frequency bands.

[63 FR 68967, Dec. 14, 1998]

APPLICATION FOR AUTHORIZATIONS

§ 90.603 Eligibility.

The following persons are eligible for licensing in the 806–824 MHz, 851–869 MHz, 896–901 MHz, and 935–940 MHz Bands.

(a) Any person eligible for licensing under subparts B, C, D, or E of this part.

(b) Any person proposing to provide communications service to any person eligible for licensing under subparts B or C of this part on a not-for-profit, cost-shared basis.

(c) Any person eligible under this part and proposing to provide on a commercial basis base station an ancillary facilities as a Specialized Mobile Radio Service System operator, for the use of individuals, federal government agencies and persons eligible for licensing under subparts B or C of this part.

[47 FR 41032, Sept. 16, 1982, as amended at 53 FR 1025, Jan. 15, 1988; 60 FR 15495, Mar. 24, 1995; 62 FR 18934, Apr. 17, 1997]

§ 90.605 Forms to be used.

Applications for conventional and trunked radio facilities must be prepared on FCC Form 601 and must be submitted or filed in accordance with § 90.127 and part 1, subpart F of this chapter.

[63 FR 68967, Dec. 14, 1998]

§ 90.607 Supplemental information to be furnished by applicants for facilities under this subpart.

(a) Except for applicants for SMR licenses, all applicants for conventional radio systems must:

(1) List all radio systems licensed to them or proposed by them within 64 km (40 mi.) from the location of the base station transmitter site of the facility for which they have applied.

(2) Specify the number of mobile units to be placed in operation upon grant of the authorization and the number of such units that will be placed in operation within 8 months of the date of grant.

(b) Except for applicants for SMR licenses, all applicants for trunked systems must:

(1) List all radio systems licensed to them within 64 km (40 mi.) from the location of the base station transmitter site of the facility for which they have applied;

(2) Specify the number of vehicular and portable mobile units and control stations to be placed in operation within the term of the license.

(c) [Reserved]

(d) All applicants for frequencies governed by this subpart are subject to the frequency coordination requirements of § 90.175(b) except applicants requesting frequencies for EA-based SMR operations in the 806–824 MHz/851–869 MHz band or 896–901 MHz/935–940 MHz band.

[47 FR 41032, Sept. 16, 1982, as amended at 49 FR 36377, Sept. 17, 1984; 51 FR 14999, Apr. 22, 1986; 59 FR 59966, Nov. 21, 1994; 63 FR 68967, Dec. 14, 1998; 69 FR 67838, Nov. 22, 2004; 70 FR 61061, Oct. 20, 2005]

§ 90.609 Special limitations on amendment of applications for assignment or transfer of authorizations for radio systems above 800 MHz.

(a) [Reserved]

(b) A license to operate a conventional or trunked radio system may not be assigned or transferred prior to the completion of construction of the facility. However, the Commission may give its consent to the assignment or transfer of control of such a license prior to the completion of construction where:

(1) The assignment or transfer does not involve a substantial change in ownership or control of the authorized radio facilities; or,

(2) The assignment or transfer is involuntary due to the licensee's insolvency, bankruptcy, incapacity, or death.

(c) Licensees of constructed systems in any category are permitted to make partial assignments of an authorized grant to an applicant proposing to create a new system or to an existing licensee that has loaded its system to 70 mobiles per channel and is expanding that system. An applicant authorized to expand an existing system or to create a new system with frequencies from any category obtained through partial assignment will receive the assignor's existing license expiration date and loading deadline for the frequencies that are assigned. A licensee that makes a partial assignment of a station's frequencies will not be authorized to obtain additional frequencies for that station for a period of one year from the date of the partial assignment.

(d) A constructed system originally licensed in the General Category that is authorized to operate in the conventional mode may be combined with an existing SMR system above 800 MHz authorized to operate in the trunked mode by assignment of an authorized grant of the General Category station to the SMR station.

[47 FR 41032, Sept. 16, 1982, as amended at 55 FR 28029, July 9, 1990; 58 FR 44962, Aug. 25, 1993; 61 FR 6155, Feb. 16, 1996; 63 FR 68967, Dec. 14, 1998; 69 FR 67838, Nov. 22, 2004]

POLICIES GOVERNING THE PROCESSING OF APPLICATIONS AND THE SELECTION AND ASSIGNMENT OF FREQUENCIES FOR USE IN THE 806–824 MHZ, 851–869 MHZ, 896–901 MHZ, AND 935–940 MHZ BANDS

§ 90.613 Frequencies available.

The following table indicates the channel designations of frequencies

available for assignment to eligible applicants under this subpart. Frequencies shall be assigned in pairs, with mobile and control station transmitting frequencies taken from the 806–824 MHz band with corresponding base station frequencies being 45 MHz higher and taken from the 851–869 MHz band, or with mobile and control station frequencies taken from the 896–901 MHz band with corresponding base station frequencies being 39 MHz higher and taken from the 935–940 MHz band. Only the base station transmitting frequency of each pair is listed in the following tables.

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS

Channel No.	Base frequency (MHz)
1	851.0125
2	.0375
3	.0500
4	.0625
5	.0750
6	.0875
7	.1000
8	.1125
9	.1250
10	.1375
11	.1500
12	.1625
13	.1750
14	.1875
15	.2000
16	.2125
17	.2250
18	.2375
19	.2500
20	.2625
21	.2750
22	.2875
23	.3000
24	.3125
25	.3250
26	.3375
27	.3500
28	.3625
29	.3750
30	.3875
31	.4000
32	.4125
33	.4250
34	.4375
35	.4500
36	.4625
37	.4750
38	.4875
39	.5125
40	.5375
41	.5500
42	.5625
43	.5750
44	.5875
45	.6000
46	.6125
47	.6250
48	.6375

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
49	.6500
50	.6625
51	.6750
52	.6875
53	.7000
54	.7125
55	.7250
56	.7375
57	.7500
58	.7625
59	.7750
60	.7875
61	.8000
62	.8125
63	.8250
64	.8375
65	.8500
66	.8625
67	.8750
68	.8875
69	.9000
70	.9125
71	.9250
72	.9375
73	.9500
74	.9625
75	.9750
76	.9875
77	852.0125
78	.0375
79	.0500
80	.0625
81	.0750
82	.0875
83	.1000
84	.1125
85	.1250
86	.1375
87	.1500
88	.1625
89	.1750
90	.1875
91	.2000
92	.2125
93	.2250
94	.2375
95	.2500
96	.2625
97	.2750
98	.2875
99	.3000
100	.3125
101	.3250
102	.3375
103	.3500
104	.3625
105	.3750
106	.3875
107	.4000
108	.4125
109	.4250
110	.4375
111	.4500
112	.4625
113	.4750
114	.4875
115	.5125
116	.5375
117	.5500

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
118	.5625
119	.5750
120	.5875
121	.6000
122	.6125
123	.6250
124	.6375
125	.6500
126	.6625
127	.6750
128	.6875
129	.7000
130	.7125
131	.7250
132	.7375
133	.7500
134	.7625
135	.7750
136	.7875
137	.8000
138	.8125
139	.7375
140	.8375
141	.8500
142	.8625
143	.8750
144	.8875
145	.9000
146	.9125
147	.9250
148	.9375
149	.9500
150	.9625
151	.9750
152	.9875
153	853.0125
154	.0375
155	.0500
156	.0625
157	.0750
158	.0875
159	.1000
160	.1125
161	.1250
162	.1375
163	.1500
164	.1625
165	.1750
166	.1875
167	.2000
168	.2125
169	.2250
170	.2375
171	.2500
172	.2625
173	.2750
174	.2875
175	.3000
176	.3125
177	.3250
178	.3375
179	.3500
180	.3625
181	.3750
182	.3875
183	.4000
184	.4125
185	.4250
186	.4375

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
187	.4500
188	.4625
189	.4750
190	.4875
191	.5000
192	.5125
193	.5250
194	.5375
195	.5500
196	.5625
197	.5750
198	.5875
199	.6000
200	.6125
201	.6250
202	.6375
203	.6500
204	.6625
205	.6750
206	.6875
207	.7000
208	.7125
209	.7250
210	.7375
211	.7500
212	.7625
213	.7750
214	.7875
215	.8000
216	.8125
217	.8250
218	.8375
219	.8500
220	.8625
221	.8750
222	.8875
223	.9000
224	.9125
225	.9250
226	.9375
227	.9500
228	.9625
229	.9750
230	.9875
231	854.0125
232	.0375
233	.0625
234	.0875
235	.1125
236	.1375
237	.1625
238	.1875
239	.2125
240	.2375
241	.2625
242	.2875
243	.3125
244	.3375
245	.3625
246	.3875
247	.4125
248	.4375
249	.4625
250	.4875
251	.5125
252	.5375
253	.5625
254	.5875
255	.6125

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
256	.6375
257	.6625
258	.6875
259	.7125
260	.7375
261	.7625
262	.7875
263	.8125
264	.8375
265	.8625
266	.8875
267	.9125
268	.9375
269	.9625
270	.9875
271	855.0125
272	.0375
273	.0625
274	.0875
275	.1125
276	.1375
277	.1625
278	.1875
279	.2125
280	.2375
281	.2625
282	.2875
283	.3125
284	.3375
285	.3625
286	.3875
287	.4125
288	.4375
289	.4625
290	.4875
291	.5125
292	.5375
293	.5625
294	.5875
295	.6125
296	.6375
297	.6625
298	.6875
299	.7125
300	.7375
301	.7625
302	.7875
303	.8125
304	.8375
305	.8625
306	.8875
307	.9125
308	.9375
309	.9625
310	.9875
311	856.0125
312	.0375
313	.0625
314	.0875
315	.1125
316	.1375
317	.1625
318	.1875
319	.2125
320	.2375
321	.2625
322	.2875
323	.3125
324	.3375

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
325	.3625
326	.3875
327	.4125
328	.4375
329	.4625
330	.4875
331	.5125
332	.5375
333	.5625
334	.5875
335	.6125
336	.6375
337	.6625
338	.6875
339	.7125
340	.7375
341	.7625
342	.7875
343	.8125
344	.8375
345	.8625
346	.8875
347	.9125
348	.9375
349	.9625
350	.9875
351	857.0125
352	.0375
353	.0625
354	.0875
355	.1125
356	.1375
357	.1625
358	.1875
359	.2125
360	.2375
361	.2625
362	.2875
363	.3125
364	.3375
365	.3625
366	.3875
367	.4125
368	.4375
369	.4625
370	.4875
371	.5125
372	.5375
373	.5625
374	.5875
375	.6125
376	.6375
377	.6625
378	.6875
379	.7125
380	.7375
381	.7625
382	.7875
383	.8125
384	.8375
385	.8625
386	.8875
387	.9125
388	.9375
389	.9625
390	.9875
391	858.0125
392	.0375
393	.0625

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
394	.0875
395	.1125
396	.1375
397	.1625
398	.1875
399	.2125
400	.2375
401	.2625
402	.2875
403	.3125
404	.3375
405	.3625
406	.3875
407	.4125
408	.4375
409	.4625
410	.4875
411	.5125
412	.5375
413	.5625
414	.5875
415	.6125
416	.6375
417	.6625
418	.6875
419	.7125
420	.7375
421	.7625
422	.7875
423	.8125
424	.8375
425	.8625
426	.8875
427	.9125
428	.9375
429	.9625
430	.9875
431	859.0125
432	.0375
433	.0625
434	.0875
435	.1125
436	.1375
437	.1625
438	.1875
439	.2125
440	.2375
441	.2625
442	.2875
443	.3125
444	.3375
445	.3625
446	.3875
447	.4125
448	.4375
449	.4625
450	.4875
451	.5125
452	.5375
453	.5625
454	.5875
455	.6125
456	.6375
457	.6625
458	.6875
459	.7125
460	.7375
461	.7625
462	.7875

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
463	.8125
464	.8375
465	.8625
466	.8875
467	.9125
468	.9375
469	.9625
470	.9875
471	860.0125
472	.0375
473	.0625
474	.0875
475	.1125
476	.1375
477	.1625
478	.1875
479	.2125
480	.2375
481	.2625
482	.2875
483	.3125
484	.3375
485	.3625
486	.3875
487	.4125
488	.4375
489	.4625
490	.4875
491	.5125
492	.5375
493	.5625
494	.5875
495	.6125
496	.6375
497	.6625
498	.6875
499	.7125
500	.7375
501	.7625
502	.7875
503	.8125
504	.8375
505	.8625
506	.8875
507	.9125
508	.9375
509	.9625
510	.9875
511	861.0125
512	.0375
513	.0625
514	.0875
515	.1125
516	.1375
517	.1625
518	.1875
519	.2125
520	.2375
521	.2625
522	.2875
523	.3125
524	.3375
525	.3625
526	.3875
527	.4125
528	.4375
529	.4625
530	.4875
531	.5125

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
532	.5375
533	.5625
534	.5875
535	.6125
536	.6375
537	.6625
538	.6875
539	.7125
540	.7375
541	.7625
542	.7875
543	.8125
544	.8375
545	.8625
546	.8875
547	.9125
548	.9375
549	.9625
550	.9875
551	862.0125
552	.0375
553	.0625
554	.0875
555	.1125
556	.1375
557	.1625
558	.1875
559	.2125
560	.2375
561	.2625
562	.2875
563	.3125
564	.3375
565	.3625
566	.3875
567	.4125
568	.4375
569	.4625
570	.4875
571	.5125
572	.5375
573	.5625
574	.5875
575	.6125
576	.6375
577	.6625
578	.6875
579	.7125
580	.7375
581	.7625
582	.7875
583	.8125
584	.8375
585	.8625
586	.8875
587	.9125
588	.9375
589	.9625
590	.9875
591	863.0125
592	.0375
593	.0625
594	.0875
595	.1125
596	.1375
597	.1625
598	.1875
599	.2125
600	.2375

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
601	.2625
602	.2875
603	.3125
604	.3375
605	.3625
606	.3875
607	.4125
608	.4375
609	.4625
610	.4875
611	.5125
612	.5375
613	.5625
614	.5875
615	.6125
616	.6375
617	.6625
618	.6875
619	.7125
620	.7375
621	.7625
622	.7875
623	.8125
624	.8375
625	.8625
626	.8875
627	.9125
628	.9375
629	.9625
630	.9875
631	864.0125
632	.0375
633	.0625
634	.0875
635	.1125
636	.1375
637	.1625
638	.1875
639	.2125
640	.2375
641	.2625
642	.2875
643	.3125
644	.3375
645	.3625
646	.3875
647	.4125
648	.4375
649	.4625
650	.4875
651	.5125
652	.5375
653	.5625
654	.5875
655	.6125
656	.6375
657	.6625
658	.6875
659	.7125
660	.7375
661	.7625
662	.7875
663	.8125
664	.8375
665	.8625
666	.8875
667	.9125
668	.9375
669	.9625

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
670	.9875
671	865.0125
672	.0375
673	.0625
674	.0875
675	.1125
676	.1375
677	.1625
678	.1875
679	.2125
680	.2375
681	.2625
682	.2875
683	.3125
684	.3375
685	.3625
686	.3875
687	.4125
688	.4375
689	.4625
690	.4875
691	.5125
692	.5375
693	.5625
694	.5875
695	.6125
696	.6375
697	.6625
698	.6875
699	.7125
700	.7375
701	.7625
702	.7875
703	.8125
704	.8375
705	.8625
706	.8875
707	.9125
708	.9375
709	.9625
710	.9875
711	866.0125
712	.0375
713	.0625
714	.0875
715	.1125
716	.1375
717	.1625
718	.1875
719	.2125
720	.2375
721	.2625
722	.2875
723	.3125
724	.3375
725	.3625
726	.3875
727	.4125
728	.4375
729	.4625
730	.4875
731	.5125
732	.5375
733	.5625
734	.5875
735	.6125
736	.6375
737	.6625
738	.6875

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
739	.7125
740	.7375
741	.7625
742	.7875
743	.8125
744	.8375
745	.8625
746	.8875
747	.9125
748	.9375
749	.9625
750	.9875
751	867.0125
752	.0375
753	.0625
754	.0875
755	.1125
756	.1375
757	.1625
758	.1875
759	.2125
760	.2375
761	.2625
762	.2875
763	.3125
764	.3375
765	.3625
766	.3875
767	.4125
768	.4375
769	.4625
770	.4875
771	.5125
772	.5375
773	.5625
774	.5875
775	.6125
776	.6375
777	.6625
778	.6875
779	.7125
780	.7375
781	.7625
782	.7875
783	.8125
784	.8375
785	.8625
786	.8875
787	.9125
788	.9375
789	.9625
790	.9875
791	868.0125
792	.0375
793	.0625
794	.0875
795	.1125
796	.1375
797	.1625
798	.1875
799	.2125
800	.2375
801	.2625
802	.2875
803	.3125
804	.3375
805	.3625
806	.3875
807	.4125

TABLE OF 806–824/851–869 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
808	.4375
809	.4625
810	.4875
811	.5125
812	.5375
813	.5625
814	.5875
815	.6125
816	.6375
817	.6625
818	.6875
819	.7125
820	.7375
821	.7625
822	.7875
823	.8125
824	.8375
825	.8625
826	.8875
827	.9125
828	.9375
829	.9625
830	.9875

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS

Channel No.	Base Frequency (MHz)
1	935.0125
2	.0250
3	.0375
4	.0500
5	.0625
6	.0750
7	.0875
8	.1000
9	.1125
10	.1250
11	.1375
12	.1500
13	.1625
14	.1750
15	.1875
16	.2000
17	.2125
18	.2250
19	.2375
20	.2500
21	.2625
22	.2750
23	.2875
24	.3000
25	.3125
26	.3250
27	.3375
28	.3500
29	.3625
30	.3750
31	.3875
32	.4000
33	.4125
34	.4250
35	.4375
36	.4500
37	.4625

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
38	.4750
39	.4875
40	.5000
41	.5125
42	.5250
43	.5375
44	.5500
45	.5625
46	.5750
47	.5875
48	.6000
49	.6125
50	.6250
51	.6375
52	.6500
53	.6625
54	.6750
55	.6875
56	.7000
57	.7125
58	.7250
59	.7375
60	.7500
61	.7626
62	.7750
63	.7875
64	.8000
65	.8125
66	.8250
67	.8375
68	.8500
69	.8625
70	.8750
71	.8875
72	.9000
73	.9125
74	.9250
75	.9375
76	.9500
77	.9625
78	.9750
79	.9875
80	936.0000
81	.0125
82	.0250
83	.0375
84	.0500
85	.0625
86	.0750
87	.0875
88	.1000
89	.1125
90	.1250
91	.1375
92	.1500
93	.1625
94	.1750
95	.1875
96	.2000
97	.2125
98	.2250
99	.2375
100	.2500
101	.2625
102	.2750
103	.2875
104	.3000
105	.3125
106	.3250

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
107	.3375
108	.3500
109	.3625
110	.3750
111	.3875
112	.4000
113	.4125
114	.4250
115	.4375
116	.4500
117	.4625
118	.4750
119	.4875
120	.5000
121	.5125
122	.5250
123	.5375
124	.5500
125	.5625
126	.5750
127	.5875
128	.6000
129	.6125
130	.6250
131	.6375
132	.6500
133	.6625
134	.6750
135	.6875
136	.7000
137	.7125
138	.7250
139	.6375
140	.7500
141	.7625
142	.7750
143	.7875
144	.8000
145	.8125
146	.8250
147	.8375
148	.8500
149	.8625
150	.8750
151	.8875
152	.9000
153	.9125
154	.9250
155	.9375
156	.9500
157	.9625
158	.9750
159	.9875
160	937.0000
161	.0125
162	.0250
163	.0375
164	.0500
165	.0625
166	.0750
167	.0875
168	.1000
169	.1125
170	.1250
171	.1375
172	.1500
173	.1625
174	.1750
175	.1875

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
176	.2000
177	.2125
178	.2250
179	.2375
180	.2500
181	.2625
182	.2750
183	.2875
184	.3000
185	.3125
186	.3250
187	.3375
188	.3500
189	.3625
190	.3750
191	.3875
192	.4000
193	.4125
194	.4250
195	.4375
196	.4500
197	.4625
198	.4750
199	.4875
200	.5000
201	.5125
202	.5250
203	.5375
204	.5500
205	.5625
206	.5750
207	.5875
208	.6000
209	.6125
210	.6250
211	.6375
212	.6500
213	.6625
214	.6750
215	.6875
216	.7000
217	.7125
218	.7250
219	.7375
220	.7500
221	.7625
222	.7750
223	.7875
224	.8000
225	.8125
226	.8250
227	.8375
228	.8500
229	.8625
230	.8750
231	.8875
232	.9000
233	.9125
234	.9250
235	.9475
236	.9500
237	.9625
238	.9750
239	.9875
240	938.0000
241	.0125
242	.0250
243	.0375
244	.0500

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
245	.0625
246	.0750
247	.0875
248	.1000
249	.1125
250	.1250
251	.1375
252	.1500
253	.1625
254	.1750
255	.1875
256	.2000
257	.2125
258	.2250
259	.2375
260	.2500
261	.2625
262	.2750
263	.2875
264	.3000
265	.3125
266	.3250
267	.3375
268	.3500
269	.3625
270	.3750
271	.3875
272	.4000
273	.4125
274	.4250
275	.4375
276	.4500
277	.4625
278	.4750
279	.4875
280	.5000
281	.5125
282	.5250
283	.5375
284	.5500
285	.5625
286	.5750
287	.5875
288	.6000
289	.6125
290	.6250
291	.6375
292	.6500
293	.6625
294	.6750
295	.6875
296	.7000
297	.7125
298	.7250
299	.7375
300	.7500
301	.7625
302	.7750
303	.7875
304	.8000
305	.8125
306	.8250
307	.8375
308	.8500
309	.8625
310	.8750
311	.8875
312	.9000
313	.9125

TABLE OF 896–901/935–940 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
314	.9250
315	.9375
316	.9500
317	.9625
318	.9750
319	.9875
320	939.0000
321	.0125
322	.0250
323	.0375
324	.0500
325	.0625
326	.0750
327	.0875
328	.1000
329	.1125
330	.1250
331	.1375
332	.1500
333	.1625
334	.1750
335	.1875
336	.2000
337	.2125
338	.2250
339	.2375
340	.2500
341	.2625
342	.2750
343	.2875
344	.3000
345	.3125
346	.3250
347	.3375
348	.3500
349	.3625
350	.3750
351	.3875
352	.4000
353	.4125
354	.4250
355	.4375
356	.4500
357	.4625
358	.4750
359	.4875
360	.5000
361	.5125
362	.5250
363	.5375
364	.5500
365	.5625
366	.5750
367	.5875
368	.6000
369	.6125
370	.6250
371	.6375
372	.6500
373	.6625
374	.6750
375	.6875
376	.7000
377	.7125
378	.7250
379	.7375
380	.7500
381	.7625
382	.7750

TABLE OF 896–901/935–940 MHz CHANNEL DESIGNATIONS—Continued

Channel No.	Base Frequency (MHz)
383	.7875
384	.8000
385	.8125
386	.8250
387	.8375
388	.8500
389	.8625
390	.8750
391	.8875
392	.9000
393	.9125
394	.9250
395	.9375
396	.9500
397	.9625
398	.9750
399	.9875

[70 FR 56583, Sept. 28, 2005, as amended at 72 FR 35200, June 27, 2007]

§ 90.614 Segments of the 806–824/851–869 MHz band for non-border areas.

The 806–824/851–869 MHz band (''800 MHz band'') will be divided as follows at locations farther then 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border (''non-border areas'')

(a) 800 MHz high density cellular systems—as defined in § 90.7—are prohibited from operating on channels 1–550 in non-border areas.

(b) 800 MHz high density cellular systems—as defined in § 90.7—are permitted to operate on channels 551–830 in non-border areas.

(c) In the following counties and parishes, 800 MHz high density cellular systems—as defined in § 90.7—are permitted to operate on channels 411–830:

Alabama: Autauga, Baldwin, Barbour, Bibb, Blount, Bullock, Butler, Calhoun, Chambers, Cherokee, Chilton, Choctaw, Clarke, Clay, Cleburne, Coffee, Colbert, Conecuh, Coosa, Covington, Crenshaw, Cullman, Dale, Dallas, DeKalb, Elmore, Escambia, Etowah, Fayette, Franklin, Geneva, Greene, Hale, Henry, Houston, Jackson, Jefferson, Lamar, Lauderdale, Lawrence, Lee, Limestone, Lowndes, Macon, Madison, Marengo, Marion, Marshall, Mobile, Monroe, Montgomery, Morgan, Perry, Pickens, Pike, Randolph, Russell, Shelby, St Clair, Sumter, Talladega, Tallapoosa, Tuscaloosa, Walker, Washington, Wilcox, Winston.

Florida: Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Madison, Nassau, Okaloosa, Santa Rosa, Taylor, Wakulla, Walton, Washington.

Georgia: Appling, Atkinson, Bacon, Baker, Baldwin, Banks, Barrow, Bartow, Ben Hill, Berrien, Bibb, Bleckley, Brantley, Brooks, Bryan, Bulloch, Burke, Butts, Calhoun, Camden, Candler, Carroll, Catoosa, Charlton, Chatham, Chattahoochee, Chattooga, Cherokee, Clarke, Clay, Clayton, Clinch, Cobb, Coffee, Colquitt, Columbia, Cook, Coweta, Crawford, Crisp, Dade, Dawson, Decatur, DeKalb, Dodge, Dooly, Dougherty, Douglas, Early, Echols, Effingham, Elbert, Emanuel, Evans, Fannin, Fayette, Floyd, Forsyth, Franklin, Fulton, Gilmer, Glascock, Glynn, Gordon, Grady, Greene, Gwinnett, Habersham, Hall, Hancock, Haralson, Harris, Hart, Heard, Henry, Houston, Irwin, Jackson, Jasper, Jeff Davis, Jefferson, Jenkins, Johnson, Jones, Lamar, Lanier, Laurens, Lee, Liberty, Lincoln, Long, Lowndes, Lumpkin, Macon, Madison, Marion, McDuffie, McIntosh, Meriwether, Miller, Mitchell, Monroe, Montgomery, Morgan, Murray, Muscogee, Newton, Oconee, Oglethorpe, Paulding, Peach, Pickens, Pierce, Pike, Polk, Pulaski, Putnam, Quitman, Rabun, Randolph, Richmond, Rockdale, Schley, Screven, Seminole, Spalding, Stephens, Stewart, Sumter, Talbot, Taliaferro, Tattnall, Taylor, Telfair, Terrell, Thomas, Tift, Toombs, Towns, Treutlen, Troup, Turner, Twiggs, Union, Upson, Walker, Walton, Ware, Warren, Washington, Wayne, Webster, Wheeler, White, Whitfield, Wilcox, Wilkes, Wilkinson, Worth.

Louisiana: Catahoula, Concordia, Madison, Tensas.

Mississippi: Adams, Alcorn, Amite, Attala, Calhoun, Carroll, Chickasaw, Choctaw, Claiborne, Clarke, Clay, Copiah, Covington, Forrest, Franklin, George, Greene, Grenada, Hancock, Harrison, Hinds, Holmes, Itawamba, Jackson, Jasper, Jefferson, Jefferson Davis, Jones, Kemper, Lamar, Lauderdale, Lawrence, Leake, Lee, Lincoln, Lowndes, Madison, Marion, Monroe, Montgomery, Neshoba, Newton,

Noxubee, Oktibbeha, Pearl River, Perry, Pike, Pontotoc, Prentiss, Rankin, Scott, Simpson, Smith, Stone, Tippah, Tishomingo, Union, Walthall, Warren, Wayne, Webster, Wilkinson, Winston, Yazoo.

North Carolina: Cherokee, Clay, Graham, Jackson, Macon.

South Carolina: Abbeville, Aiken, Allendale, Anderson, Bamberg, Barnwell, Beaufort, Edgefield, Greenwood, Hampton, Jasper, McCormick, Oconee.

Tennessee: Bledsoe, Bradley, Franklin, Giles, Hamilton, Hardin, Lawrence, Lincoln, Marion, McMinn, McNairy, Meigs, Monroe, Moore, Polk, Rhea, Sequatchie, Wayne.

[69 FR 67843, Nov. 22, 2004, as amended at 70 FR 76708, Dec. 28, 2005; 72 FR 39760, July 20, 2007]

§ 90.615 Individual channels available in the General Category in 806–824/851–869 MHz band.

The General Category will consist of channels 231–260 and 511–550 at locations farther then 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border. All entities will be eligible for licensing on these channels except as described in paragraphs (a) and (b) of this section.

(a) In a given 800 MHz NPSPAC region, any channel in the 231–260 range which is vacated by a licensee relocating to channels 551–830 and which remains vacant after band reconfiguration will be available as follows:

(1) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region;

(2) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region;

(3) To all entities five years after release of a public notice announcing the completion of band reconfiguration in that region.

(b) In a given 800 MHz NPSPAC region, any channel in the 231–260 range which is vacated by a licensee relocating to channels 511–550 and remains vacant after band reconfiguration will be available as follows:

(1) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region;

(2) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region;

(3) To all entities five years after release of a public notice announcing the completion of band reconfiguration in that region.

(c) Spectrum Block F1 consists of channels 236–260.

[70 FR 6759, Feb. 8, 2005, as amended at 70 FR 76708, Dec. 28, 2005]

§ 90.617 Frequencies in the 809.750–824/854.750–869 MHz, and 896–901/935–940 MHz bands available for trunked, conventional or cellular system use in non-border areas.

The following channels will be available at locations farther then 110 km (68.4 miles) from the U.S./Mexico border and 140 km (87 miles) from the U.S./Canadian border (''non-border areas'').

(a) Unless otherwise specified, the channels listed in Table 1 and paragraph (a)(1) of this section are available for to eligible applicants in the Public Safety Category which consists of licensees eligible in the Public Safety Pool of subpart B of this part. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These frequencies are available in non-border areas. Specialized Mobile Radio Systems will not be authorized in this category. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 1—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS

[70 Channels]

Group No.	Channel Nos.
269	269–289–311–399–439
270	270–290–312–400–440
279	279–299–319–339–359
280	280–300–320–340–360
309	309–329–349–369–389
310	310–330–350–370–390
313	313–353–393–441–461
314	314–354–394–448–468

TABLE 1—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS—Continued

[70 Channels]

Group No.	Channel Nos.
321	321–341–361–381–419
328	328–348–368–388–420
351	351–379–409–429–449
332	352–380–410–430–450
Single Channels	391, 392, 401, 408, 421, 428, 459, 460, 469, 470

(1) Channels numbers 1–230 are also available to eligible applicants in the Public Safety Category in non-border areas. The assignment of these channels will be done in accordance with the policies defined in the Report and Order of Gen. Docket No. 87–112 (See § 90.16). The following channels are available only for mutual aid purposes as defined in Gen. Docket No. 87–112: channels 1, 39, 77, 115, 153.

(2) Except as provided in paragraph (a)(3) of this section, the channels listed in Table 1A are available in the counties listed in § 90.614(c) to eligible applicants in the Public Safety Category. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 1A—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS FOR COUNTIES IN SOUTHEASTERN U.S.

[70 Channels]

Group No.	Channel Nos.
261	261–313–324–335–353
262	262–314–325–336–354
265	265–285–315–333–351
266	266–286–316–334–352
269	269–289–311–322–357
270	270–290–312–323–355
271	271–328–348–358–368
279	279–299–317–339–359
280	280–300–318–340–360
309	309–319–329–349–369
310	310–320–330–350–370
321	321–331–341–361–372
Single Channels	326, 327, 332, 337, 338, 342, 343, 344, 345, 356

(3) The channels listed in Table 1B are available within 113 km (70 mi) of the center city coordinates of Atlanta, GA to eligible applicants in the Public Safety Category. The center city coordinates of Atlanta, GA—for the purposes of the rule—are defined as 33°44′55″ NL, 84°23′17″ WL. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 1B—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS FOR ATLANTA, GA

[70 Channels]

Group No.	Channel Nos.
261	261–313–324–335–353
262	262–314–325–336–354
269	269–289–311–322–357
270	270–290–312–323–355
279	279–299–319–339–359
280	280–300–320–340–360
285	285–315–333–351–379
286	286–316–334–352–380
309	309–329–349–369–389
310	310–330–350–370–390
321	321–331–341–361–381
328	328–348–358–368–388
Single Channels	317, 318, 326, 327, 332, 337, 338, 356, 371, 372

(b) Unless otherwise specified, the channels listed in Table 2 are available to applicants eligible in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These frequencies are available in non-border areas. Specialized Mobile Radio (SMR) systems will not be authorized on these frequencies. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 2—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 806–816/851–861 MHZ BAND CHANNELS

[100 Channels]

Group No.	Channel Nos.
322	322–362–402–442–482
323	323–363–403–443–483
324	324–364–404–444–484
325	325–365–405–445–485
326	326–366–406–446–486
327	327–367–407–447–487
342	342–382–422–462–502
343	343–383–423–463–503
344	344–384–424–464–504
345	345–385–425–465–505
346	346–386–426–466–506
347	347–387–427–467–507

TABLE 2—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 806–816/851–861 MHz BAND CHANNELS—Continued

[100 Channels]

Group No.	Channel Nos.
Single Channels	261, 271, 281, 291, 301, 262, 272, 282, 292, 302, 263, 273, 283, 293, 303, 264, 274, 284, 294, 304, 265, 275, 285, 295, 305, 266, 276, 286, 296, 306, 267, 277, 287, 297, 307, 268, 278, 288, 298, 308

(1) Except as provided in paragraph (b)(2) of this section, the channels listed in Table 2A are available in the counties listed in § 90.614(c) to eligible applicants in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 2A—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 806–816/851–861 MHz BAND FOR CHANNELS IN SOUTHEASTERN U.S.

[69 Channels]

	Channel Nos.
Single Channels	263, 264, 267, 268, 272, 273, 274, 275, 276, 277, 278, 281, 282, 283, 284, 287, 288, 291, 292, 293, 294, 295, 296, 297, 298, 301, 302, 303, 304, 305, 306, 307, 308, 346, 347, 362, 363, 364, 365, 366, 367, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410

(2) The channels listed in Table 2B are available within 113 km (70 mi) of the center city coordinates of Atlanta, GA, to eligible applicants in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). The center city coordinates of Atlanta, GA—for the purposes of the rule—are defined as 33°44′55″ NL, 84°23′17″ WL. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 2B—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 806–816/851–861 MHz BAND FOR CHANNELS IN ATLANTA, GA

[69 Channels]

	Channel Nos.
Single Channels	263, 264, 265, 266, 267, 268, 271, 272, 273, 274, 275, 276, 277, 278, 281, 282, 283, 284, 287, 288, 291, 292, 293, 294, 295, 296, 297, 298, 301, 302, 303, 304, 305, 306, 307, 308, 342, 343, 344, 345, 346, 347, 362, 363, 364, 365, 366, 367, 382, 383, 384, 385, 386, 387, 391, 392, 393, 394, 399, 400, 401, 402, 403, 404, 405, 406, 407, 409, 410

(c) The channels listed in Table 3 are available to applicants eligible in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). These frequencies are available in nonborder areas. Specialized Mobile Radio (SMR) systems will not be authorized on these frequencies. These channels are available for intercategory sharing as indicated in § 90.621(e).

For multi-channel systems, channels may be grouped vertically or horizontally as they appear in the following table.

TABLE 3—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 896–901/935–940 MHZ BAND CHANNELS

[199 channels]

Channel Nos.	
11–12–13–14–15	211–212–213–214–215
16–17–18–19–20	216–217–218–219–220
31–32–33–34–35	231–232–233–234–235
36–37–38–39–40	236–237–238–239–240
51–52–53–54–55	251–252–253–254–255
56–57–58–59–60	256–257–258–259–260
71–72–73–74–75	271–272–273–274–275

TABLE 3—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 896–901/935–940 MHZ BAND CHANNELS—Continued

[199 channels]

76–77–78–79–80	276–277–278–279–280
91–92–93–94–95	291–292–293–294–295
96–97–98–99–100	296–297–298–299–300
111–112–113–114–115.	311–312–313–314–315
116–117–118–119–120.	316–317–318–319–320
131–132–133–134–135.	331–332–333–334–335
136–137–138–139–140.	336–337–338–339–340
151–152–153–154–155.	351–352–353–354–355
156–157–158–159–160.	356–357–358–359–360
171–172–173–174–175.	371–372–373–374–375
176–177–178–179–180.	376–377–378–379–380
191–192–193–194–195.	391–392–393–394–395
196–197–198–199–200.	396–397–398–399

(d) Unless otherwise specified, the channels listed in Tables 4A and 4B are available only to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. 800 MHz high density cellular systems, as defined in § 90.7, are prohibited on these channels. These frequencies are available in non-border areas. The spectrum blocks listed in Table 4A are available for EA-based services (as defined by § 90.681) prior to January 21, 2005. No new EA-based services will be authorized after January 21, 2005. EA-based licensees who operate non-high-density cellular systems prior to January 21, 2005, may choose to remain on these channels in the non-high-density cellular portion of the 800 MHz band (as defined in § 90.614). These licensees may continue to operate non-high-density cellular systems and will be grandfathered indefinitely. The channels listed in Table 4B will be available for site-based licensing after January 21, 2005, in any Economic Area where no EA-based licensee is authorized for these channels.

TABLE 4A—EA-BASED SMR CATEGORY 806–816/851–861 MHZ BAND CHANNELS, AVAILABLE PRIOR TO JANUARY 21, 2005

[80 Channels]

Spectrum block	Channel Nos.
G	311–351–391–431–471
H	312–352–392–432–472
I	313–353–393–433–473
J	314–354–394–434–474
K	315–355–395–435–475
L	316–356–396–436–476
M	317–357–397–437–477
N	318–358–398–438–478
O	331–371–411–451–491
P	332–372–412–452–492
Q	333–373–413–453–493
R	334–374–414–454–494
S	335–375–415–455–495
T	336–376–416–456–496
U	337–377–417–457–497
V	338–378–418–458–498

TABLE 4B—SMR CATEGORY 806–816/851–861 MHZ BAND CHANNELS, AVAILABLE AFTER JANUARY 21, 2005, FOR SITE-BASED LICENSING

[80 Channels]

Group No.	Channel Nos.
315	315–355–395–435–475
316	316–356–396–436–476
317	317–357–397–437–477
318	318–358–398–438–478
331	331–371–411–451–491
332	332–372–412–452–492
333	333–373–413–453–493
334	334–374–414–454–494
335	335–375–415–455–495
336	336–376–416–456–496
337	337–377–417–457–497
338	338–378–418–458–498
Single Channels	431, 432, 433, 434, 471, 472, 473, 474, 479, 480, 481, 488, 489, 490, 499, 500, 501, 508, 509, 510

(1) Except as provided in paragraph (d)(2) of this section, the channels listed in Table 4C are available in the counties listed in § 90.614(c) for non-high-density cellular operations only to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 4C—SMR CATEGORY 806–816/851–861 MHZ BAND CHANNELS AVAILABLE FOR SITE-BASED LICENSING IN SOUTHEASTERN U.S. AFTER JANUARY 21, 2005

[11 Channels]

	Channel Nos.
Single Channels	371, 373, 374, 375, 376, 377, 378, 395, 396, 397, 398

(2) The channels listed in Table 4D are available within 113 km (70 mi) of the center city coordinates of Atlanta, GA, only to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. The center city coordinates of Atlanta, GA—for the purposes of this rule—are defined as 33°44′55″ NL, 84°23′17″ WL. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e). 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels. These channels are available for intercategory sharing as indicated in § 90.621(e).

TABLE 4D—SMR CATEGORY 806–816/851–861 MHZ BAND CHANNELS AVAILABLE FOR SITE-BASED LICENSING IN ATLANTA, GA AFTER JANUARY 21, 2005

[11 Channels]

	Channel Nos.
Single Channels	373, 374, 375, 376, 377, 378, 395, 396, 397, 398, 408

(e) The Channels listed in § 90.614(b) and (c) are available to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. ESMR licensees which employ an 800 MHz high density cellular system, as defined in § 90.7, are permitted to operate on these channels in non-border areas. ESMR licensees authorized prior to January 21, 2005, may continue to operate, if they so choose, on the channels listed in Table 5. These licensees will be grandfathered indefinitely.

TABLE 5—ESMR CATEGORY 816–821 MHZ BAND CHANNELS FOR CELLULAR OPERATIONS IN NON-BORDER AREAS AVAILABLE PRIOR TO JANUARY 21, 2005

[200 Channels]

Spectrum block	Channel Nos.
A	511 through 530.
B	531 through 590.
C	591 through 710.

(f) The channels listed in Tables 6 are available for operations only to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. These frequencies are available in non-border areas. The spectrum blocks listed below are available for EA-based services according to § 90.681.

TABLE 6—SMR CATEGORY 896–901/935–940 MHZ BAND CHANNELS

[200 channels]

Block	Channel Nos.
A	1–2–3–4–5–6–7–8–9–10
B	21–22–23–24–25–26–27–28–29–30
C	41–42–43–44–45–46–47–48–49–50
D	61–62–63–64–65–66–67–68–69–70
E	81–82–83–84–85–86–87–88–89–90
F	101–102–103–104–105–106–107–108–109–110
G	121–122–123–124–125–126–127–128–129–130
H	141–142–143–144–145–146–147–148–149–150
I	161–162–163–164–165–166–167–168–169–170
J	181–182–183–184–185–186–187–188–189–190
K	201–202–203–204–205–206–207–208–209–210
L	221–222–223–224–225–226–227–228–229–230
M	241–242–243–244–245–246–247–248–249–250
N	261–262–263–264–265–266–267–268–269–270
O	281–282–283–284–285–286–287–288–289–290
P	301–302–303–304–305–306–307–308–309–310
Q	321–322–323–324–325–326–327–328–329–330
R	341–342–343–344–345–346–347–348–349–350
S	361–362–363–364–365–366–367–368–369–370
T	381–382–383–384–385–386–387–388–389–390

(g) In a given NPSPAC region, channels below 471 listed in Tables 2 and 4B

which are vacated by licensees relocating to channels 551–830 and which remain vacant after band reconfiguration will be available as indicated in § 90.617(g)(1 through 3). The only exception will be for the counties listed in § 90.614(c). At locations greater then 113 km (70 mi) from the center city coordinates of Atlanta, GA within the counties listed in § 90.614(c), the channels listed in Tables 2A and 4C which are vacated by licensees relocating to channels 411–830 and which remain vacant after band reconfiguration will be available as indicated in § 90.617(g)(1 through 3). At locations within 113 km (70 mi) of the center city coordinates of Atlanta, GA, the channels listed in Tables 2B and 4D which are vacated by licensees relocating to channels 411–830 and which remain vacant after band reconfiguration will be available as follows:

(1) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region;

(2) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region;

(3) Five years after the release of a public notice announcing the completion of band reconfiguration in that region, these channels revert back to their original pool categories.

(h) In a given 800 MHz NPSPAC region—except for the counties listed in § 90.614(c)—channels below 471 listed in Tables 2 and 4B which are vacated by a licensee relocating to channels 511–550 and remain vacant after band reconfiguration will be available as follows:

(1) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region;

(2) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region;

(3) Five years after the release of a public notice announcing the completion of band reconfiguration in that region, these channels revert back to their original pool categories.

(i) Special Mobilized Radio Systems licensees who operate systems, other than 800 MHz high density cellular systems, on any of the public safety channels listed in Table 1 prior to January 21, 2005, are grandfathered and may continue to operate on these channels indefinitely. These grandfathered licensees will be prohibited from operating 800 MHz high density cellular systems as defined in § 90.7. Site-based licensees who are grandfathered on any of the public safety channels listed in Table 1 may modify their license only if they obtain concurrence from a certified public safety coordinator in accordance with § 90.175(c). Grandfathered EA-based licensees, however, are exempt from any of the frequency coordination requirements of § 90.175 as long as their operations remain within the Economic Area defined by their license in accordance with the requirements of § 90.683(a).

(j) Licensees operating 800 MHz high density cellular systems on the channels listed in § 90.614(a), prior to January 21, 2005, may elect to continue operating on these channels and will be permitted to continue operating 800 MHz high density cellular systems (as defined in § 90.7) in this portion of the band. These licensees will be grandfathered indefinitely subject to the provisions of §§ 90.673, 90.674 and 90.675.

(k) Licensees may operate systems other than 800 MHz high density cellular systems (as defined in § 90.7) on Channels 511–550 at any location vacated by an EA-based SMR licensee. For operations on these channels, unacceptable interference (as defined in § 22.970 of this chapter and § 90.672) will be deemed to occur only at sites where the following median desired signals are received (rather than those specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1(i). The minimum required median desired signal, as measured at the R.F. input of the receiver, will be as follows:

(1) Mobile units (except in Puerto Rico and the U.S. Virgin Islands):

(i) For channels 511 to 524—the minimum median desired signal levels

specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) shall apply;

(ii) For channels 524 to 534—the minimum median desired signal level shall increase linearly from the values specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) to −70 dBm;

(iii) For channels 534 to 550—the minimum median desired signal level shall increase linearly from −70 dBm to −65 dBm.

(2) Portable units (except in Puerto Rico and the U.S. Virgin Islands):

(i) For channels 511 to 524—the minimum median desired signal levels specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) shall apply;

(ii) For channels 524 to 530—the minimum median desired signal level shall increase linearly from the values specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) to −80 dBm;

(iii) For channels 530 to 534—the minimum median desired signal level shall increase linearly from −80 dBm to −70 dBm;

(iv) For channels 534 to 550—the minimum median desired signal level shall increase linearly from −70 dBm to −65 dBm.

(3) Mobile units operating in Puerto Rico and the U.S. Virgin Islands:

(i) For channels 511 to 530—the minimum median desired signal levels specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) shall apply;

(ii) For channels 531 to 534—the minimum median desired signal level shall increase linearly from −80.2 dBm to −70 dBm;

(iii) For channels 534 to 550—the minimum median desired signal level shall increase linearly from −70 dBm to −65 dBm.

(4) Portable units operating in Puerto Rico and the U.S. Virgin Islands:

(i) For channels 511 to 530—the minimum median desired signal levels specified in § 22.970(a)(1)(i) of this chapter and § 90.672(a)(1)(i) shall apply;

(ii) For channels 531 to 534—the minimum median desired signal level shall increase linearly from −80 dBm to −70 dBm;

(iii) For channels 534 to 550—the minimum median desired signal level shall increase linearly from −70 dBm to −65 dBm.

[69 FR 67843, Nov. 22, 2004, as amended at 70 FR 6760, Feb. 8, 2005; 70 FR 76708, Dec. 28, 2005; 72 FR 39760, July 20, 2007; 75 FR 35317, June 22, 2010; 76 FR 11683, Mar. 3, 2011]

§ 90.619 Operations within the U.S./Mexico and U.S./Canada border areas.

(a) *Use of frequencies in 800 MHz band in Mexico border region.* All operations in the 806–824/851–869 MHz band within 110 km (68.35 miles) of the U.S./Mexico border (''Sharing Zone'') shall be in accordance with international agreements between the U.S. and Mexico.

(1) The U.S. and Mexico divide primary access to channels in the Sharing Zone as indicated in Table A1 below.

TABLE A1—U.S. AND MEXICO PRIMARY CHANNELS IN SHARING ZONE

Channels	Primary access
1–360	U.S.
361–610	Mexico.
611–830	U.S.-Mexico Co-Primary.

(2) Stations authorized on U.S. primary channels in the Sharing Zone are subject to the effective radiated power (ERP) and antenna height limits listed below in Table A2.

TABLE A2—LIMITS ON EFFECTIVE RADIATED POWER (ERP) AND ANTENNA HEIGHT

Average of the antenna height above average terrain on standard radials in the direction of the common border (meters) [1]	Maximum ERP in any direction toward the common border per 25 kHz (watts)
0 to 503	500
Above 503 to 609	350
Above 609 to 762	200
Above 762 to 914	140
Above 914 to 1066	100
Above 1066 to 1219	75
Above 1219 to 1371	70
Above 1371 to 1523	65
Above 1523	5

[1] Standard radials are 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° to True North. The height above average terrain on any standard radial is based upon the average terrain elevation above mean sea level.

(3) Stations may be authorized on channels primary to Mexico in the Sharing Zone provided the maximum power flux density (PFD) at any point at or beyond the border does not exceed −107 db(W/m^2) per 25 kHz of bandwidth. Licensees may exceed this value only if

all potentially affected counterpart operators in the other country agree to a higher PFD level.

(4) Stations authorized on U.S.-Mexico co-primary channels in the Sharing Zone are permitted to exceed a maximum power flux density (PFD) of −107 db(W/m^2) per 25 kHz of bandwidth at any point at or beyond the border only if all potentially affected counterpart operators of 800 MHz high density cellular systems, as defined in § 90.7, agree.

(5) Channels in the Sharing Zone are available for licensing as indicated in Table A3 below.

TABLE A3—ELIGIBILITY REQUIREMENTS FOR CHANNELS IN SHARING ZONE

Channels	Eligibility requirements
1–230	Report and Order of Gen. Docket No. 87–112.
231–315	Public Safety Pool.
316–550	General Category.
551–830	Special Mobilized Radio for 800 MHz High Density Cellular.

(i) Channels 1–230 are available to applicants eligible in the Public Safety Category. The assignment of these channels will be done in accordance with the policies defined in the Report and Order of Gen. Docket No. 87–112 (See § 90.16). The following channels are available only for mutual aid purposes as defined in Gen. Docket No. 87–112: channels 1, 39, 77, 115, 153. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels.

(ii) Channels 231–315 are available to applicants eligible in the Public Safety Category which consists of licensees eligible in the Public Safety Pool of subpart B of this part. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels.

(iii) Channels 316–550 are available in the General Category. All entities are eligible for licensing on these channels. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels.

(iv) Channels 551–830 are available to applicants eligible in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. ESMR licensees who employ 800 MHz high density cellular systems, as defined in § 90.7, are permitted to operate on these channels.

(6) Stations located outside the Sharing Zone (*i.e.* greater than 110 km from the border) are subject to the channel eligibility requirements and provisions listed in §§ 90.615 and 90.617 except that stations in the following counties are exempt from the requirements of paragraph (k) of § 90.617:

California: San Luis Obispo, Kern, San Bernardino, Santa Barbara, Ventura, Los Angeles, Orange and Riverside.

(b) *Use of frequencies in 900 MHz Band in Mexico border region.* All operations in the 896–901/935–940 MHz band within the Mexico border region shall be in accordance with international agreements between the U.S. and Mexico.

(1) The channels listed in Table 1 below are available to applicants eligible in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). These frequencies are available within the Mexico border region. Specialized Mobile Radio (SMR) systems will not be authorized on these frequencies.

For multi-channel systems, channels may be grouped vertically or horizontally as they appear in the following table. Channels numbered above 200 may be used only subject to the power flux density limits stated in paragraph (a)(2) of this section:

TABLE 1—UNITED STATES/MEXICO BORDER AREA, BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 896–901/935–940 MHZ BAND

[199 Channels]

Channel Nos.	
11–12–13–14–15	131–132–133–134–135
16–17–18–19–20	136–137–138–139–140
31–32–33–34–35	231–232–233–234–235
36–37–38–39–40	236–237–238–239–240
51–52–53–54–55	171–172–173–174–175
56–57–58–59–60	176–177–178–179–180
71–72–74–75	271–272–273–274–275
76–77–78–79–80	276–277–278–279–280

TABLE 1—UNITED STATES/MEXICO BORDER AREA, BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 896–901/935–940 MHZ BAND—Continued

[199 Channels]

91–92–93–94–95	211–212–213–214–215
96–97–98–99–100	216–217–218–219–220
111–112–113–114–115	311–312–313–314–315
116–117–118–119–120	316–317–318–319–320
151–152–153–154–155	351–352–353–354–355
156–157–158–159–160	356–357–358–359–360
191–192–193–194–195	391–392–393–394–395
196–197–198–199–200	396–397–398–399
251–252–253–254–255	331–332–333–334–335
256–257–258–259–260	336–337–338–339–340
291–292–293–294–295	371–372–373–374–375
296–297–298–299–300	376–377–378–379–380

(2) The channels listed in Table 2 of this section are available for operations only to eligibles in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. These frequencies are available in the Mexico border region. The spectrum blocks listed in the table below are available for EA-based services according to § 90.681.

TABLE 2—UNITED STATES-MEXICO BORDER AREA, SMR CATEGORY 896–901/935–940 MHZ BAND

[200 Channels]

Block	Channel Nos.
A	1–2–3–4–5–6–7–8–9–10
B	21–22–23–24–25–26–27–28–29–30
C	41–42–43–44–45–46–47–48–49–50
D	61–62–63–64–65–66–67–68–69–70
E	81–82–83–84–85–86–87–88–89–90
F	101–102–103–104–105–106–107–108–109–110
G	121–122–123–124–125–126–127–128–129–130
H	141–142–143–144–145–146–147–148–149–150
I	161–162–163–164–165–166–167–168–169–170
J	181–182–183–184–185–186–187–188–189–190
K	201–202–203–204–205–206–207–208–209–210
L	221–222–223–224–225–226–227–228–229–230
M	241–242–243–244–245–246–247–248–249–250
N	261–262–263–264–265–266–267–268–269–270

TABLE 2—UNITED STATES-MEXICO BORDER AREA, SMR CATEGORY 896–901/935–940 MHZ BAND—Continued

[200 Channels]

Block	Channel Nos.
O	281–282–283–284–285–286–287–288–289–290
P	301–302–303–304–305–306–307–308–309–310
Q	321–322–323–324–325–326–327–328–329–330
R	341–342–343–344–345–346–347–348–349–350
S	361–362–363–364–365–366–367–368–369–370
T	381–382–383–384–385–386–387–388–389–390

Channels numbered above 200 may only be used subject to the power flux density limits at or beyond the Mexico border as stated in paragraph (4) of this section.

(3) The specific channels that are available for licensing in the band 896–901/935–940 MHz within the Mexico border region are subject to Effective Radiated Power (ERP) and Antenna Height limitations as indicated in Table 3 below.

TABLE 3—LIMITS OF EFFECTIVE RADIATED POWER (ERP) CORRESPONDING TO ANTENNA HEIGHTS OF BASE STATIONS IN THE 896–901/935–940 MHZ BANDS WITHIN 110 KILOMETERS (68.4 MILES) OF THE MEXICAN BORDER

Antenna height above mean sea level		ERP in watts (maximum)
Meters	Feet	
0–503	0–1650	500
504–609	1651–2000	350
610–762	2001–2500	200
764–914	2501–3000	140
915–1066	3001–3500	100
1067–1219	3501–4000	75
1220–1371	4000–4500	70
1372–1523	4501–5000	65
Above 1523	Above 5000	5

(4) All channels in the 896–901/935–940 MHz band are available for assignment to U.S. stations within the Mexico border region if the maximum power flux density (pfd) of the station's transmitted signal at any point at or beyond the border does not exceed −107 dB (W/m^2). The spreading loss must be calculated using the free space formula taking into account any antenna discrimination in the direction of the border. Authorizations for stations using channels allotted to Mexico on a primary basis will be secondary to Mexican operations and conditioned to require that licensees take immediate action to eliminate any harmful interference resulting from the station's transmitted signal exceeding −107 dB (W/m^2).

(c) *Use of 800 MHz Band in Canada Border Region.* All operations in the 806–824/851–869 MHz band within 140 km (87 miles) of the U.S./Canada border (''U.S./Canada border area'') shall be in accordance with international agreements between the U.S. and Canada.

(1) The U.S./Canada border area is divided into the following geographical regions (''Canada Border Regions''). U.S. primary channels are shown in the table by region. The remaining channels are primary to Canada (''Canada Primary channels'').

TABLE C1—GEOGRAPHICAL REGIONS

Region	Location (longitude)	U.S. primary channels
1	66° W–71° W (0–100 km from border)	1–260, 561–710, 772–790 and 792–830.
2	71° W–80°30′ W (0–100 km from border)	1–170, 621–710 and 795–830.
3	80°30′ W–85° W (0–100 km from border)	1–320, 501–710, 729–730, 732–750, 752–770, 772–790 and 792–830.
4	85° W–121°30′ W (0–100 km from border)	1–260, 561–710, 772–790 and 792–830.
5	121°30′ W–127° W (0–140 km from border)	1–260, 561–710, 772–790 and 792–830.
6	127° W–143° W (0–100 km from border)	1–260, 561–710, 772–790 and 792–830.
7A	66° W–71° W (100–140 km from border)	1–830.
7A	80°30′ W–121°30′ W (100–140 km from border)	1–830.
7B	71° W–80°30′ W (100–140 km from border)	1–830.
8	127° W–143° W (100–140 km from border)	1–830.

(2) Stations authorized on U.S. primary channels in all Canada Border Regions, except Region 5, will be subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limitations listed in Table C2. The Effective Antenna Height is calculated by subtracting the Assumed Average Terrain Elevation (AATE) listed in Table C3 from the antenna height above mean sea level.

TABLE C2—LIMITS OF EFFECTIVE RADIATED POWER (ERP) CORRESPONDING TO EFFECTIVE ANTENNA HEIGHTS (EAH) FOR REGIONS 1, 2, 3, 4, 6, 7 AND 8

Effective Antenna Height (EAH)		ERP watts (maximum)
Metres	Feet	
0–152	0–500	500
153–305	501–1000	125
306–457	1001–1500	40
458–609	1501–2000	20
610–914	2001–3000	10
915–1066	3001–3500	6
Above 1967	Above 3501	5

TABLE C3—ASSUMED AVERAGE TERRAIN ELEVATION (AATE) ALONG THE U.S.-CANADA BORDER

Longitude (Φ) (°West)	Latitude (Ω) (°North)	Assumed average terrain elevation			
		United States		Canada	
		Feet	Metres	Feet	Metres
65 ≤Φ <69	Ω <45	0	0	0	0
”	45 ≤Ω <46	300	91	300	91
”	Ω ≥46	1000	305	1000	305
69 ≤Φ <73	All	2000	609	1000	305
73 ≤Φ <74	”	500	152	500	152
74 ≤Φ <78	”	250	76	250	76
78 ≤Φ <80	Ω <43	250	76	250	76
”	Ω ≥43	500	152	500	152
80 ≤Φ <90	All	600	183	600	183
90 ≤Φ <98	”	1000	305	1000	305
98 ≤Φ <102	”	1500	457	1500	457
102 ≤Φ <108	”	2500	762	2500	762
108 ≤Φ <111	”	3500	1066	3500	1066
111 ≤Φ <113	”	4000	1219	3500	1066
113 ≤Φ <114	”	5000	1524	4000	1219
114 ≤Φ <121.5	”	3000	914	3000	914
121.5 ≤Φ <127	”	0	0	0	0
Φ ≥127	54 ≤Ω <56	0	0	0	0
”	56 ≤Ω <58	500	152	1500	457
”	58 ≤Ω <60	0	0	2000	609
”	60 ≤Ω <62	4000	1219	2500	762
”	62 ≤Ω <64	1600	488	1600	488

TABLE C3—ASSUMED AVERAGE TERRAIN ELEVATION (AATE) ALONG THE U.S.-CANADA BORDER—Continued

Longitude (Φ) (°West)	Latitude (Ω) (°North)	Assumed average terrain elevation			
		United States		Canada	
		Feet	Metres	Feet	Metres
”	64 ≤Ω <66	1000	305	2000	609
”	66 ≤Ω <68	750	228	750	228
”	68 ≤Ω <69.5	1500	457	500	152
”	Ω ≥69.5	0	0	0	0

(3) Stations authorized on U.S. primary channels in Canada Border Region 5 will be subject to the Effective Radiated Power (ERP) and Antenna Height Above Mean Sea Level limitations listed in Table C4.

TABLE C4—LIMITS OF EFFECTIVE RADIATED POWER (ERP) CORRESPONDING TO ANTENNA HEIGHT ABOVE MEAN SEA LEVEL FOR REGION 5

Antenna Height Above Mean Sea Level		ERP Watts (maximum)
Metres	Feet	
0–503	0–1650	500
504–609	1651–2000	350
610–762	2001–2500	200
763–914	2501–3000	140
915–1066	3001–3500	100
1067–1219	3501–4000	75
1220–1371	4001–4500	70
1372–1523	4501–5000	65
Above 1523	Above 5000	5

(4) Stations may be authorized on Canada Primary channels in the Canada Border Regions provided the maximum power flux density (PFD) per 25 kHz at or beyond the border does not exceed −107 dB(W/m2). Stations authorized on Canada Primary channels will be secondary to stations in Canada unless otherwise specified in an international agreement between the U.S. and Canada.

(5) Stations authorized to operate within 30 kilometers of the center city coordinates listed in Table C5 may operate according to the band plan for Canadian Border Regions 7A and 7B as indicated below.

TABLE C5—CITIES THAT ARE CONSIDERED TO FALL WITHIN CANDIAN BORDER REGION 7

Location	Coordinates		Canadian border region
	Latitude	Longitude	
Akron, Ohio	41°05′00.2″ N	81°30′39.4″ W	7A
Youngstown, Ohio	41°05′57.2″ N	80°39′01.3″ W	7A
Syracuse, New York	43°03′04.2″ N	76°09′12.7″ W	7B

(6) The channels listed in Table C6 and paragraph (c)(6)(i) of this section are available in the Canada Border Regions for non-cellular operations to eligible applicants in the Public Safety Category which consists of licensees eligible in the Public Safety Pool of subpart B of this part. 800 MHz high density cellular systems as defined in § 90.7 are prohibited on these channels.

TABLE C6—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS IN THE CANADA BORDER REGIONS

Canada Border Region	Channel Nos.	Total
Regions 1, 4, 5 and 6	231–260	30 Channels.
Region 2	See paragraph (c)(6)(i) of this section.	
Region 3	231–320, 501–508	90 Channels.

TABLE C6—PUBLIC SAFETY POOL 806–816/851–861 MHZ BAND CHANNELS IN THE CANADA BORDER REGIONS—Continued

Canada Border Region	Channel Nos.	Total
Regions 7A and 8	269, 289, 311, 399, 439, 270, 290, 312, 400, 440, 279, 299, 319, 339, 359, 280, 300, 320, 340, 360, 309, 329, 349, 369, 389, 310, 330, 350, 370, 390, 313, 353, 393, 441, 461, 314, 354, 394, 448, 468, 321, 341, 361, 381, 419, 328, 348, 368, 388, 420, 351, 379, 409, 429, 449, 352, 380, 410, 430, 450, 391, 392, 401, 408, 421, 428, 459, 460, 469, 470.	70 Channels.
Region 7B	231–260, 269, 289, 311, 399, 439, 270, 290, 312, 400, 440, 279, 299, 319, 339, 359, 280, 300, 320, 340, 360, 309, 329, 349, 369, 389, 310, 330, 350, 370, 390, 313, 353, 393, 441, 461, 314, 354, 394, 448, 468, 315, 355, 395, 435, 475, 316, 356, 396, 436, 476, 317, 357, 397, 437, 477, 318, 358, 398, 438, 478, 321, 341, 361, 381, 419, 328, 348, 368, 388, 420, 331, 371, 411, 451, 491, 332, 372, 412, 452, 492, 333, 373, 413, 453, 493, 334, 374, 414, 454, 494, 335, 375, 415, 455, 495, 336, 376, 416, 456, 496, 337, 377, 417, 457, 497, 338, 378, 418, 458, 498, 351, 379, 409, 429, 449, 352, 380, 410, 430, 450, 391, 392, 401, 408, 421, 428, 459, 460, 469, 470, 431, 432, 433, 434, 471, 472, 473, 474, 479, 480.	170 Channels.

(i) Channel numbers 1–230 are also available to eligible applicants in the Public Safety Category in the Canada Border Regions. The assignment of these channels will be done in accordance with the policies defined in the Report and Order of Gen. Docket No. 87–112 (See § 90.16). The following channels are available only for mutual aid purposes as defined in Gen. Docket No. 87–112: Channels 1, 39, 77, 115, 153.

(ii) [Reserved]

(7) The channels listed in Table C7 are available in the Canada Border Regions for the General Category. All entities will be eligible for licensing on these channels. 800 MHz high density cellular systems as defined in § 90.7 are permitted on these channels only as indicated in Table C7. The channels noted for Regions 1, 2, 3, 4, 5 and 6 where high density cellular systems are prohibited are all frequencies that are primary to Canada. Stations may be licensed on these Canada Primary channels according to paragraph (c)(4) of this section.

TABLE C7—GENERAL CATEGORY 806–821/851–866 MHZ BAND CHANNELS IN THE CANADA BORDER REGIONS

Canada border region	General category channels where 800 MHz high density cellular systems are prohibited	General category channels where 800 MHz high density cellular systems are permitted
Regions 1, 4, 5 and 6	261–560	561–710
Region 2	231–620	621–710
Region 3	321–500	509–710
Regions 7A and 8	231–260, 511–550	None
Region 7B	511–550	None

(8) The channels listed in Table C8 are available in the Canada Border Regions to applicants eligible in the Industrial/Business Pool of subpart C of this part but exclude Special Mobilized Radio Systems as defined in § 90.603(c). 800 MHz cellular high density systems as defined in § 90.7 are prohibited on these channels.

TABLE C8—BUSINESS/INDUSTRIAL/LAND TRANSPORTATION POOL 806–816/851–861 MHZ BAND CHANNELS IN THE CANADA BORDER REGIONS

Canada Border Region	Channel Nos.	Total
Regions 1, 2, 3, 4, 5 and 6	None	0 Channels.
Regions 7A, 7B and 8	261, 271, 281, 291, 301, 262, 272, 282, 292, 302, 263, 273, 283, 293, 303, 264, 274, 284, 294, 304, 265, 275, 285, 295, 305, 266, 276, 286, 296, 306, 267, 277, 287, 297, 307, 268, 278, 288, 298, 308, 322, 362, 402, 442, 482, 323, 363, 403, 443, 483, 324, 364, 404, 444, 484, 325, 365, 405, 445, 485, 326, 366, 406, 446, 486, 327, 367, 407, 447, 487, 342, 382, 422, 462, 502, 343, 383, 423, 463, 503, 344, 384, 424, 464, 504, 345, 385, 425, 465, 505, 346, 386, 426, 466, 506, 347, 387, 427, 467, 507.	100 Channels.

(9) The channels listed in Table C9 are available in the Canada Border Regions to applicants eligible in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. 800 MHz high density cellular systems, as defined in § 90.7, are prohibited on these channels.

TABLE C9—SMR CATEGORY 806–816/851–861 MHZ CHANNELS AVAILABLE FOR SITE-BASED LICENSING IN THE CANADA BORDER REGIONS

Canada Border Region	Channel Nos.	Total
Regions 1, 2, 3, 4, 5 and 6	None	0 Channels.
Regions 7A and 8	315, 355, 395, 435, 475, 316, 356, 396, 436, 476, 317, 357, 397, 437, 477, 318, 358, 398, 438, 478, 331, 371, 411, 451, 491, 332, 372, 412, 452, 492, 333, 373, 413, 453, 493, 334, 374, 414, 454, 494, 335, 375, 415, 455, 495, 336, 376, 416, 456, 496, 337, 377, 417, 457, 497, 338, 378, 418, 458, 498, 431, 432, 433, 434, 471, 472, 473, 474, 479, 480, 481, 488, 489, 490, 499, 500, 501, 508, 509, 510.	80 Channels.
Region 7B	481, 488, 489, 490, 499, 500, 501, 508, 509, 510	10 Channels.

(10) The channels listed in Table C10 are available in the Canada Border Regions to applicants eligible in the SMR category—which consists of Specialized Mobile Radio (SMR) stations and eligible end users. ESMR licensees who employ 800 MHz high density cellular systems, as defined in § 90.7, are permitted to operate on these channels. Some of the channels listed in Table C10 are primary to Canada as indicated in paragraph (c)(1) of this section. ESMR systems may be authorized on these Canada Primary channels according to paragraph (c)(4) of this section.

TABLE C10—ESMR CATEGORY 817–824/862–869 MHZ CHANNELS AVAILABLE FOR 800 MHZ HIGH DENSITY SYSTEMS

Canada Border Region	Channel Nos.	Total
Regions 1, 2, 3, 4, 5 and 6	711–830	120 Channels.
Regions 7A, 7B and 8	551–830	280 Channels.

(11) In Canada Border Regions 1, 2, 3, 4, 5 and 6, the following General Category channels are available for licensing to all entities except as described below in paragraphs (c)(11)(i) and (c)(11)(ii): in Regions 1, 4, 5 and 6, channels 261–560; in Region 2, channels 231–620 and in Region 3, channels 321–500.

(i) In a given 800 MHz NPSPAC region, the General Category channels listed paragraph (c)(11) of this section which are vacated by licensees relocating to channels 711–830 and which remain vacant after band reconfiguration will be available for licensing as follows:

(A) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region;

(B) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region; and

(C) To all entities five years after release of a public notice announcing the completion of band reconfiguration in that region.

(ii) The General Category channels listed in paragraph (c)(11) of this section are primary to Canada. Stations may be authorized on these Canada Primary channels according to paragraph (c)(4).

(12) In Canada Border Regions 7A, 7B and 8, the following channels will be available as described in paragraphs (c)(12)(i) and (c)(12)(ii) of this section: for Canada Border Regions 7A and 8, channels 231–260 and channels below 471 in Tables C8 and C9; for Canada Border Region 7B all channels in Tables C8 and C9.

(i) In a given 800 MHz NPSPAC region, the channels listed paragraph (c)(12) of this section which are vacated by licensees relocating to channels 511–830 and which remain vacant after band reconfiguration will be available as follows:

(A) Only to eligible applicants in the Public Safety Category until three years after the release of a public notice announcing the completion of band reconfiguration in that region; and

(B) Only to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories from three to five years after the release of a public notice announcing the completion of band reconfiguration in that region.

(ii) Five years after the release of a public notice announcing the completion of band reconfiguration in a given 800 MHz NPSPAC region, the channels listed in paragraph (c)(12) of this section will revert back to their original pool categories.

(d) *Use of 900 MHz Band in Canada Border Region*. All operations in the 896–901/935–940 MHz band within the Canada border region shall be in accordance with international agreements between the U.S. and Canada. The following criteria shall govern the assignment of frequency pairs (channels) in the 896–901/935–940 MHz band for stations located in the U.S./Canada border area. They are available for assignments for conventional or trunked systems in accordance with applicable sections of this subpart.

(1) Channels 1–399, as listed in § 90.613 table of 896–901/935–940 MHz Channel Designations, are available to eligible applicants for use in the U.S./Canada border area as shown in table 27. Additionally, Channels 71, 75, 79, 151, 155, and 159 are available in all regions only for implementation of an Advanced Train Control System as defined in 3 FCC Rcd 427 (1988) (Advanced Train Control Waiver).

TABLE 27—CHANNELS IN THE 896–901/935–940 MHZ FREQUENCY BANDS AVAILABLE IN THE U.S./CANADA BORDER AREA

Region	Location (longitude)	Channels
1	66° W–71° W. (0–100 km from border) ...	1–200, 398, 399
2	71° W–80°30′ W (0–100 km from border)	1–120
3	80°30′ W–85° W (0–100 km from border)	1–340
4	85° W–121°30′ W (0–100 km from border).	1–200, 398, 399
5	121°30′ W–127° W (0–140 km from border).	1–200, 398, 399
6	127° W–143° W (0–100 km from border)	1–200, 398, 399
7	66° W–121°30′ W (100–140 km from border).	1–399
8	127° W–143° W (100–140 km from border).	1–399

Note: For assignments in the 896–901/935–940 MHz bands, the cities of Akron, Ohio (41°05′00″ N, 81°30′40″ W) and Youngstown, Ohio (41°05′57″ N, 80°39′02″ W) are considered outside of Region 3, and Syracuse, New York (43°03′04″ N, 76°09′14″ W) is considered outside of Region 2. These cities are defined as an area with the given center coordinates and encompassing a circle of 30 km radius.

(2) All frequency assignments made pursuant to paragraph (d)(1) of this section shall comply with the requirements of § 90.619(b).

(3) In Region 5, Channels 201–397 may be authorized in the United States under the following conditions:

(i) An assignment may be made if the predicted power flux density (PFD) of a proposed station's signal does not exceed –107 dBW/m^2 at the border. The prediction of the PFD is calculated based upon a modified Longley-Rice point-to-point propagation model with time and location variabilities of 10 percent[3] and 3-second digitized terrain date[4].

(ii) Authorizations for Channels 201–397 in Region 5 are secondary to Canadian operations and conditioned to require that licensees take immediate action to eliminate any harmful interference resulting from the station's transmitted signal exceeding –107 dBW/m^2 at or beyond the U.S./Canada border.

(4) Channel assignments for stations to be located in the geographical area in Region 1 enclosed by the United States-Canada border, the meridian 71° W and the line beginning at the intersection of 44°25′ N, 71° W, then running by great circle arc to the intersection of 45° N, 70° W, then North along meridian 70° W to the intersection of 45°45′ N, then running West along 45°45′ N to the

[3] See note 1, paragraph (c) of this section.

[4] See note 2, paragraph (c) of this section.

intersection of the United States-Canada border, will be only for channels 121 through 160, inclusive, and will be limited to assignments with 11 kHz or less necessary bandwidth. Coordination with Canada will be required for these channels.

(5) Channel assignments for stations to be located in the geographical area in Region 3 enclosed by the meridian of 81° W longitude, the arc of a circle of 100 km radius centered at 42°39′30″ N latitude and 81° W longitude at the northern shore of Lake Erie and drawn clockwise from the southerly intersection with 80°30′ W longitude to intersect the United States-Canada border West of 81° W, and the United States-Canada border, will be only for channels 121 through 230, inclusive, and will be limited to assignments with 11 kHz or less necessary bandwidth. Coordination with Canada will be required for these channels. U.S. stations must protect Canadian stations operating on channels 121 through 230 within an area of 30 km radius from the center city coordinates (referenced to North American Datum 1983 (NAD83)) of London, Ontario (42°59′00.1″ N, 81°13′59.5″ W).

(6) *Additional channels available*—The channels listed in table 28 are available for assignment in Regions 1–6 if the maximum power flux density (PFD) of the station's transmitted signal does not exceed the limits specified in tables 29 and 30. The spreading loss shall be calculated using the free space formula taking into account any antenna discrimination in the direction of the border.

TABLE 28—ADDITIONAL CHANNELS AVAILABLE

[Regions 1–6]

Region	Channel No.'s	Effective radiated power
1	201–397	See Table 29
2	121–399	See Table 29
3	341–399	See Table 29
4	201–397	See Table 29
5	201–397	See Table 30
6	201–397	See Table 29

Authorizations for stations using these channels will be secondary to Canadian operations and conditioned to require that licensees take immediate action to eliminate any harmful interference resulting from the station's transmitted signal exceeding the values specified in tables 29 or 30 at or beyond the U.S./Canada border.

TABLE 29—MAXIMUM POWER FLUX DENSITY (PFD) AT THE U.S./CANADA BORDER CORRESPONDING TO EFFECTIVE ANTENNA HEIGHT

[Regions 1, 2, 3, 4, and 6]

Effective antenna height (EAH)		PFD (dBW/m^2)
Feet	Meters	
0–500	0–152	−84
501–1000	153–305	−90
1001–1500	306–457	−95
1501–2000	458–609	−98
2001–2500	610–762	−101
2501–3000	763–914	−101
3001–3500	915–1066	−103
3501–4000	1067–1219	−104
Above 4000	Above 1219	−104

TABLE 30—MAXIMUM POWER FLUX DENSITY (PFD) AT THE U.S./CANADA BORDER CORRESPONDING TO ANTENNA HEIGHT ABOVE MEAN SEA LEVEL

[Region 5]

Antenna height above mean sea level		PFD (dBW/m^2)
Feet	Meters	
0–1650	0–503	−87.0
1651–2000	504–609	−88.5
2001–2500	610–762	−91.0
2501–3000	763–914	−92.5
3001–3500	915–1066	−94.0
3501–4000	1067–1219	−95.0
4001–4500	1220–1371	−95.5
4501–5000	1372–1523	−96.0
Above 5000	Above 1523	−107.0

(Secs. 4(i) and 303, Communications Act, as amended, and 5 U.S.C. 553 (b)(3)(B) and (d)(1))

[47 FR 41032, Sept. 16, 1982; 47 FR 41045, Sept. 16, 1982]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.619, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.621 Selection and assignment of frequencies.

(a) Applicants for frequencies in the Public Safety and Business/Industrial/Land Transportation Categories must specify on the application the frequencies on which the proposed system will operate pursuant to a recommendation by the applicable frequency coordinator. Applicants for frequencies in the SMR Category must request specific frequencies by including in their applications the frequencies requested.

(1) For trunked systems, the assignment of frequencies will be made in accordance with applicable loading criteria and in accordance with the following:

(i) Channels will be chosen and assigned in accordance with §§ 90.615, 90.617, or 90.619.

(ii) A mobile station is authorized to transmit on any frequency assigned to its associated base station.

(iii) There are no limitations on the number of frequencies that may be trunked. Authorizations for non-SMR stations may be granted for up to 20 trunked frequency pairs at a time in accordance with the frequencies listed in §§ 90.615, 90.617, and 90.619.

(2) For conventional systems the assignment of frequencies will be made in accordance with applicable loading criteria. Accordingly, depending upon the number of mobile units to be served, an applicant may either be required to share a channel, or, if an applicant shows a sufficient number of mobile units to warrant the assignment of one or more channels for its exclusive use, it may be licensed to use such channel or channels on an unshared basis in the area of operation specified in its application.

(i) Channels will be chosen and assigned in accordance with §§ 90.615, 90.617, or 90.619.

(ii) A mobile station is authorized to transmit on any frequency assigned to its associated base station.

(b) Stations authorized on frequencies listed in this subpart, except for those stations authorized pursuant to paragraph (g) of this section and EA-based and MTA-based SMR systems, will be assigned frequencies solely on the basis of fixed distance separation criteria. The separation between co-channel systems will be a minimum of 113 km (70 mi) with one exception. For incumbent licensees in Channel Blocks F1 through V, that have received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dBμV/m signal strength interference contour (*see* § 90.693), the separation between co-channel systems will be a minimum of 173 km (107 mi). The following exceptions to these separations shall apply:

(1) Except as indicated in paragraph (b)(4) of this section, no station in Channel Blocks A through V shall be less than 169 km (105 mi) distant from a co-channel station that has been granted channel exclusivity and authorized 1 kW ERP on any of the following mountaintop sites: Santiago Peak, Sierra Peak, Mount Lukens, Mount Wilson (California). Except as indicated in paragraph (b)(4) of this section, no incumbent licensee in Channel Blocks F1 through V that has received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dBμV/m signal strength interference contour shall be less than 229 km (142 mi) distant from a co-channel station that has been granted channel exclusivity and authorized 1 kW ERP on any of the following mountaintop sites: Santiago Peak, Sierra Peak, Mount Lukens, Mount Wilson (California).

(2) The separation between co-channel stations that have been granted exclusivity and that are located at high sites in California north of 35° N Latitude and west of 118° W Longitude shall be determined as follows:

(i) Required co-channel separations between common antenna sites are given by table 1. A channel group assigned to a station on a site listed in the vertical column may not be re-assigned to a station on a site listed in the horizontal column if there is an ''X'' in the box created by the intersection of the vertical and horizontal lines. The geographic coordinates listed in the table represent an average for each particular site; all locations within 1.6 km (1 mi) of the coordinates will be considered to be at that site.

(ii) Required co-channel separations involving antenna sites not listed in table 1 shall be determined by Commission staff on a case by case basis. The interference potential of proposed assignments will be evaluated considering parameters such as antenna height, effective radiated power, terrain irregularities, and market conditions.

TABLE 1: CO-CHANNEL SEPARATIONS BETWEEN COMMON ANTENNA SITES IN THE STATE OF CALIFORNIA NORTH OF 35° NORTH LATITUDE AND WEST OF 118° WEST LONGITUDE

North Latitude	West Longitude	Site Name	Big Rock Ridge	Mt. Tamalpais	Wolfback Ridge	Mt. Diablo	Grizzley Peak	Vollmer Peak	Roundtop	Clay Jones Bldg	San Bruno Mtn	Skeggs Peak	Black Mountain	Mt Umunnum	Mt Chual	Loma Prieta	Toro Peak	Mission Ridge	Tuscan Buttes	Forest Ranch	Sutter Buttes	Wolf Mtn	Chantry Hill	Mt Vaca	Fowler Peak	Mt Oso	Mt Bullion	Meadow Lakes	Bear Mtn	Joaquin Ridge	Blue Ridge	Pheasant Hill	Granite Peak	Elk Hill	McKittrick Peak	McKittrick Peak
38-03-40	122-36-17	Big Rock Ridge	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x	x	x	x	x	x										
37-55-44	122-35-11	Mt. Tamalpais	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x	x	x	x	x	x										
37-50-57	122-29-56	Wolfback Ridge	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x												
37-52-54	121-55-05	Mt. Diablo	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x	x	x							
37-51-12	122-12-30	Grizzley Peak	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x	x	x	x	x	x										
37-52-58	122-13-11	Vollmer Peak	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x									
37-51-00	122-11-30	Roundtop	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x	x	x	x	x	x	x									
37-43-33	122-24-52	Clay Jones Bldg.	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x			x												
37-41-21	122-26-08	San Bruno Mtn.	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x												
37-24-39	122-18-20	Skegga Peak	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		x										
37-19-13	122-08-33	Black Mountain	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		x										
37-10-37	121-54-24	Mt. Umunnum	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		x										
37-07-09	121-49-58	Mt. Chual	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		x										
37-06-40	121-50-29	Loma Prieta	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		x										
36-31-45	121-36-24	Toro Peak										x	x	x	x	x		x												x						
37-29-15	121-52-03	Mission Ridge	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x						x	x	x	x									
40-15-46	122-05-37	Tuscan Buttes																	x	x	x	x	x	x												
39-51-50	121-41-20	Forest Ranch				x		x	x										x	x	x	x	x	x												
39-12-17	121-49-02	Sutter Buttes	x	x		x	x	x	x	x									x	x	x	x	x	x	x	x										
39-08-01	121-05-58	Wolf Mtn	x	x		x	x	x	x										x	x	x	x	x	x	x	x										
38-52-15	121-07-39	Chantry Hill	x	x		x	x	x	x										x	x	x	x	x	x	x	x	x									
38-24-20	122-06-30	Mt. Vaca	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x									
38-01-15	120-35-06	Fowler Peak	x	x		x	x	x	x									x			x	x	x	x	x	x	x	x	x	x						
37-30-31	121-22-26	Mt. Oso	x	x		x	x	x	x			x	x	x	x	x		x			x	x	x	x	x	x	x	x	x	x	x					
37-32-32	120-03-45	Mt. Bullion				x		x	x									x					x	x	x	x	x	x	x	x	x					
37-04-10	119-25-39	Meadow Lakes				x																			x	x	x	x	x	x	x	x	x	x	x	x
36-44-38	119-16-59	Bear Mtn				x																			x	x	x	x	x	x	x	x	x	x	x	x
36-18-10	120-24-03	Joaquin Ridge															x								x	x	x	x	x	x	x	x	x	x	x	x
36-17-07	118-50-19	Blue Ridge																								x	x	x	x	x	x	x	x	x	x	x
35-38-29	118-47-08	Pheasant Hill																										x	x	x	x	x	x	x	x	x
35-33-09	118-49-20	Granite Peak																										x	x	x	x	x	x	x	x	x
35-17-17	119-30-55	Elk Hill																										x	x	x	x	x	x	x	x	x
35-17-27	119-45-48	Mc Kittrick Peak																										x	x	x	x	x	x	x	x	x
35-16-51	119-44-52	Mc Kittrick Peak																										x	x	x	x	x	x	x	x	x

(3) Except as indicated in paragraph (b)(4) of this section, stations in Channel Blocks A through V that have been granted channel exclusivity and are located in the State of Washington at the locations listed in the table below shall be separated from co-channel stations by a minimum of 169 km (105 mi). Except as indicated in paragraph (b)(4) of this section, incumbent licensees in Channel Blocks F1 through V that have received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dBμV/m signal strength interference contour, have been granted channel exclusivity and are located in the State of Washington at the locations listed in the table below shall be separated from co-channel stations by a minimum of 229 km (142 mi). Locations within one mile of the geographical coordinates listed in the table below will be considered to be at that site.

NOTE: Coordinates are referenced to North American Datum 1983 (NAD83).

Site name	North latitude	West longitude
Mount Constitution	48° 40′ 47.4″	122° 50′ 28.7″
Lyman Mountain	48° 35′ 41.4″	122° 09′ 39.6″
Cultus Mountain	48° 25′ 30.4″	122° 08′ 58.5″
Gunsite Ridge	48° 03′ 22.4″	121° 51′ 41.5″
Gold Mountain	47° 32′ 51.3″	122° 46′ 56.5″
Buck Mountain	47° 47′ 05.3″	122° 59′ 34.6″
Cougar Mountain	47° 32′ 39.4″	122° 06′ 34.4″
Squak Mountain	47° 30′ 14.4″	122° 03′ 34.4″
Tiger Mountain	47° 30′ 13.4″	121° 58′ 32.4″
Devils Mountain	48° 21′ 52.4″	122° 16′ 06.6″
McDonald Mountain	47° 20′ 11.3″	122° 51′ 30.5″
Maynard Hill	48° 00′ 58.3″	122° 55′ 35.6″
North Mountain	47° 19′ 07.3″	123° 20′ 48.6″
Green Mountain	47° 33′ 40.3″	122° 48′ 31.5″
Capitol Peak	46° 58′ 21.3″	123° 08′ 21.5″
Rattlesnake Mountain	47° 28′ 09.4″	121° 49′ 17.4″
Three Sisters Mountain	47° 07′ 19.4″	121° 53′ 34.4″
Grass Mountain	47° 12′ 14.1″	121° 47′ 42.4″
Spar Pole Hill	47° 02′ 51.4″	122° 08′ 39.4″

(4) Upon an applicant's specific request to the Commission or a frequency coordinator, co-channel stations may be separated by less than 113 km (70 mi) by meeting certain transmitter ERP and antenna height criteria. The following table indicates separations assignable to such co-channel stations for various transmitter power and antenna height combinations. The minimum separation permitted is 88 km (55 mi). Applicants will provide the Commission with a statement that the application is submitted for consideration under the table, a list of all co-channel stations within 113 km (70 mi), and the DHAATs and ERPs for these stations and the applicant's proposed station. Applicants seeking to be licensed for stations located at distances less than those prescribed in the table are required to secure a waiver and must submit with the application, in addition to the above, an interference analysis, based upon any of the generally-accepted terrain-based propagation models, that shows that co-channel stations would receive the same or greater interference protection than provided in the table. Requests for separations less than 88 km (55 mi) must also include an analysis of interference potential from mobile transmitters to existing co-channel base station receivers. Applicants seeking a waiver must submit with their application a certificate of service indicating that concurrent with the submission of the application to the Commission or a coordinator, all co-channel licensees within the applicable area were served with a copy of the application and all attachments thereto. Licensees thus served may file an opposition to the application within 30 days from the date the application is filed with the Commission.

(i) The directional height of the antenna above average terrain (DHAAT) is calculated from the average of the antenna heights above average terrain from 3 to 16 km (2 to 10 mi) from the proposed site along a radial extending in the direction of the existing station and the radials 15 degrees to either side of that radial.

(ii) Except for the sites listed in paragraphs (b)(1), (b)(2), and (b)(3) of this section, additional co-channel distance separation must be afforded to an existing station from an applicant wishing to locate a station less than 113 km (70 mi) from a co-channel station, where either the applicant's or the existing station is located at sites with DHAATs of 458 m (1500 ft) and above. The separation between short-spaced co-channel stations shall be determined as follows:

(A) Calculate the DHAAT in each direction between every existing co-channel station with 113 km (70 mi) and the proposed station.

(B) In the table, locate the approximate ERP and DHAAT values for the proposed and existing stations.

(C) When DHAAT values are greater than 458 m (1500 ft), use the required separation for 305 m (1000 ft) and add 1.6 km (1 mi) for every 30.5 km (100 ft), or increment thereof, of DHAAT above 458 m (1500 ft) to the distance indicated in the table. If both the proposed existing stations have DHAATs of 458 m (1500 ft) or more, the additional distance is separately determined for each station and the combined distance is added to the distance obtained from the table. Protection to existing stations will be afforded only up to 113 km (70 mi).

SHORT-SPACING SEPARATION TABLE

Proposed station ERP (watts)/ DHAAT(m) [3]	Distance between stations (km) [1 2]						
	Existing station DHAAT (meters) [3]						
	305	215	150	108	75	54	37
1000/305	113	113	113	113	113	113	113
1000/215	113	113	113	113	113	113	110
1000/150	113	113	113	113	112	108	103

SHORT-SPACING SEPARATION TABLE—Continued

Proposed station ERP (watts)/ DHAAT(m) [3]	Distance between stations (km) [1 2]						
	Existing station DHAAT (meters) [3]						
	305	215	150	108	75	54	37
1000/108	113	113	113	110	107	103	98
1000/75	113	112	108	103	100	96	91
1000/54	113	109	105	100	97	93	88
1000/37	109	104	100	95	92	88	88
500/305	113	113	113	113	113	113	110
500/215	113	113	113	112	109	105	100
500/150	113	112	108	103	100	96	91
500/108	112	107	103	98	95	91	88
500/75	107	102	98	93	90	88	88
500/54	103	98	94	89	88	88	88
500/37	99	94	90	88	88	88	88
250/305	113	113	113	112	109	105	100
250/215	113	113	107	102	99	95	90
250/150	109	104	100	95	92	88	88
250/108	105	100	96	91	88	88	88
250/75	99	94	90	88	88	88	88
250/54	95	90	88	88	88	88	88
250/37	91	88	88	88	88	88	88
125/305	113	111	107	102	99	95	90
125/215	108	103	99	94	91	88	88
125/150	103	98	94	89	88	88	88
125/108	98	93	89	88	88	88	88
125/75	93	88	88	88	88	88	88
125/54	88	88	88	88	88	88	88
125/37	88	88	88	88	88	88	88
62/305	108	103	99	94	91	88	88
62/215	103	98	94	89	88	88	88
62/150	97	92	88	88	88	88	88
62/108	92	88	88	88	88	88	88
62/75	88	88	88	88	88	88	88
62/54	88	88	88	88	88	88	88
62/37	88	88	88	88	88	88	88

[1] Separations for stations on Santiago Peak, Sierra Peak, Mount Lukens, and Mount Wilson (CA) and the locations in the State of Washington listed in paragraph (b)(3) of this section are 56 km (35 mi) greater than those listed in the table above. In the event of conflict between this table and the table of additional California high elevation sites shown in paragraph (b)(2) of this section, the latter will apply.

[2] Distances shown are derived from the R–6602 curves and are based upon a non-overlap of the 22 dBu (F50,10) interference contour of the proposed station with the 40 dBu (F50,50) contour of the existing station(s). No consideration is given to the 40 dBu service contour of the proposed station and the 22 dBu contour of the existing station(s). The minimum separation of stations will be 88 km (55 mi).

[3] All existing stations are assumed to operate with 1000 watts ERP. When the ERP and/or DHAAT of a proposed station or the DHAAT of an existing station is not indicated in the table, the next higher value(s) must be used.

(5) The separation between co-channel systems may be less than the separations defined above if an applicant submits with its application letters of concurrence indicating that the applicant and each co-channel licensee within the specified separation agree to accept any interference resulting from the reduced separation between their systems. Each letter from a co-channel licensee must certify that the system of the concurring licensee is constructed and fully operational. The applicant must also submit with its application a certificate of service indicating that all concurring co-channel licensees have been served with an actual copy of the application.

(6) A station located closer than the distances provided in this section to a co-channel station that was authorized as short-spaced under paragraph (b)(4) of this section shall be permitted to modify its facilities as long as the station does not extend its 22 dBu contour beyond its maximum 22 dBu contour (i.e., the 22 dBu contour calculated using the station's maximum power and antenna height at its original location) in the direction of the short-spaced station.

(7) Offset frequencies in the 811–821/856–866 MHz band for use only within U.S./Mexico border area, as designated in § 90.619(a), shall be considered co-channel with non-offset frequencies in this band as designated in § 90.613. New applications for frequencies in this band for stations adjacent to the U.S./Mexico border area must comply with the co-channel separation provisions of this section.

(c) Conventional systems authorized on frequencies in the Public Safety (except for those systems that have participated in a formal regional planning process as described in § 90.16) and Business/Industrial/Land Transportation categories which have not met the loading levels necessary for channel exclusivity will not be afforded co-channel protection.

(d) [Reserved]

(e) Frequencies in the 809–817/854–862 MHz bands listed as available for eligibles in the Public Safety and Business/Industrial/Land Transportation Categories are available for inter-category sharing under the following conditions:

(1) Channels in the Public Safety and Business/Industrial/Land Transportation categories will be available to eligible applicants in those categories only if there are no frequencies in their own category and no public safety systems are authorized on those channels under consideration to be shared.

(2) Notwithstanding paragraph (e)(5) of this section, licensees of channels in the Business/Industrial/Land Transportation category may request a modification of the license, see § 1.947 of this

chapter, to authorize use of the channels for commercial operation. The licensee may also, at the same time or thereafter, seek authorization to transfer or assign the license, see § 1.948 of this chapter, to any person eligible for licensing in the General or SMR categories. Applications submitted pursuant to this paragraph must be filed in accordance with the rules governing other applications for commercial channels, and will be processed in accordance with those rules. Grant of requests submitted pursuant to this paragraph is subject to the following conditions:

(i) A licensee that modifies its license to authorize commercial operations will not be authorized to obtain additional 800 MHz Business/Industrial/Land Transportation category channels for sites located within 113 km (70 mi.) of the station for which the license was modified, for a period of one year from the date the license is modified. This provision applies to the licensee, its controlling interests and their affiliates, as defined in § 1.2110 of this chapter.

(ii) With respect to licenses the initial application for which was filed on or after November 9, 2000, requests submitted pursuant to paragraph (e)(2) of this section may not be filed until five years after the date of the initial license grant. In the case of a license that is modified on or after November 9, 2000 to add 800 MHz Business/Industrial/Land Transportation frequencies or to add or relocate base stations that expand the licensee's interference contour, requests submitted pursuant to paragraph (e)(2) of this section for these frequencies or base stations may not be filed until five years after such modification.

(iii) Requests submitted pursuant to paragraph (e)(2) of this section must include a certification that written notice of the modification application has been provided to all Public Safety licensees, see § 90.20(a), with base stations within 113 km (70 mi.) of the site of the channel(s) for which authorization for commercial use is sought that operate within 25 kHz of the center of those channel(s). If, pursuant to paragraph (e)(2) of this section, modification and assignment or transfer applications are filed at different times, the written notice required by this paragraph must be provided each time.

(iv) The applicant must certify that it will take reasonable precautions to avoid causing harmful interference to Public Safety licensees, *see* § 90.20(a), and to take such action as may be necessary to eliminate interference to such licensees caused by its operations. (When an assignment or transfer application is filed pursuant to paragraph (e)(2) of this section, this representation is required only of the assignee or transferee.) Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation.

(3) Licensees granted authorizations pursuant to paragraph (e)(2) of this section may at any time request modification of the license to authorize use of the channels consistent with the rules governing the category to which they are allocated, provided that the licensee meets the applicable eligibility requirements.

(4) [Reserved]

(5) The frequency coordinator must certify that frequencies are not available in the applicant's own category, and coordination is required from the applicable out-of-category coordinator.

(6) The out-of-category licensee must operate by the rules applicable to the category to which the frequency is allocated.

(f) Licensees of channels in the Business/Industrial/Land Transportation Categories in the 896–901/935–940 MHz bands may request a modification of the license, *see* § 1.947 of this chapter, to authorize use of the channels for commercial operation. The licensee may also, at the same time, or thereafter, seek authorization to transfer or assign the license, *see* § 1.948 of this chapter, to any person eligible for licensing in the General or SMR categories. Applications submitted pursuant to this paragraph must be filed in accordance with the rules governing other applications for commercial channels, and will

be processed in accordance with those rules.

(g) Applications for Public Safety systems (both trunked and conventional) in the 806–809/851–854 MHz bands will be assigned and protected based on the criteria established in the appropriate regional plan. See § 90.16 and the Report and Order in General Docket 87–112.

(h) [Reserved]

[47 FR 41032, Sept. 16, 1982]

EDITORIAL NOTES 1. For FEDERAL REGISTER citations affecting § 90.621, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

2. At 63 FR 68968, Dec. 14, 1998, § 90.621 was amended by adding a note before Table 1 and revising the first two columns of Table 1. However, Table 1 of § 90.621 as it appears in the October 1, 1998 revision of title 47 parts 80–end is an illustration and cannot be amended. For the convenience of the user, the revised text is set forth as follows:

§ 90.621 Selection and assignment of frequencies.

* * * * *

(b) * * *

TABLE 1—CO-CHANNEL SEPARATIONS BETWEEN COMMON ANTENNA SITES IN THE STATE OF CALIFORNIA NORTH OF 35° NORTH LATITUDE AND WEST OF 118° WEST LONGITUDE

[NOTE: Coordinates are referenced to North American Datum 1983 (NAD83)]

North latitude	West longitude	* * *
38°03′39.7″	122°36′20.9″	* * *
37°55′43.7″	122°35′14.9″	* * *
37°50′56.7″	122°29′59.9″	* * *
37°52′53.7″	121°55′08.9″	* * *
37°51′11.7″	122°12′33.9″	* * *
37°52′57.7″	122°13′14.9″	* * *
37°50′59.7″	122°11′33.9″	* * *
37°43′32.8″	122°24′55.9″	* * *
37°41′20.8″	122°26′11.9″	* * *
37°24′38.8″	122°18′23.9″	* * *
37°19′12.8″	122°08′36.9″	* * *
37°10′36.8″	121°54′27.8″	* * *
37°07′08.8″	121°50′01.8″	* * *
37°06′39.8″	121°50′32.8″	* * *
36°31′44.9″	121°36′27.8″	* * *
37°29′14.8″	121°52′06.8″	* * *
40°15′45.6″	122°05′41.0″	* * *
39°51′49.6″	121°41′23.9″	* * *
39°12′16.6″	121°49′05.9″	* * *
39°08′00.6″	121°06′01.8″	* * *
38°52′14.6″	121°07′42.8″	* * *
38°24′19.7″	122°06′33.9″	* * *
38°01′14.7″	120°35′09.7″	* * *
37°30′30.8″	121°22′29.8″	* * *
37°32′31.8″	120°03′48.6″	* * *
37°04′09.8″	119°25′42.5″	* * *

TABLE 1—CO-CHANNEL SEPARATIONS BETWEEN COMMON ANTENNA SITES IN THE STATE OF CALIFORNIA NORTH OF 35° NORTH LATITUDE AND WEST OF 118° WEST LONGITUDE—Continued

[NOTE: Coordinates are referenced to North American Datum 1983 (NAD83)]

North latitude	West longitude	* * *
36°44′37.8″	119°17′02.4″	* * *
36°18′09.8″	120°24′06.6″	* * *
36°17′06.8″	118°50′22.3″	* * *
35°38′28.8″	118°47′11.3″	* * *
35°33′08.8″	118°49′23.3″	* * *
35°17′16.9″	119°30′58.4″	* * *
35°17′26.9″	119°45′51.5″	* * *
35°16′50.9″	119°44′55.5″	* * *

* * * * *

§ 90.623 Limitations on the number of frequencies assignable for conventional systems.

(a) The maximum number of frequency pairs that may be assigned to a licensee for operation in the conventional mode in a given area is five (5).

(b) Where an applicant proposes to operate a conventional radio system to provide facilities for the use of a single person or entity eligible under subparts B or C of this part, the applicant may be assigned only the number of frequency pairs justified on the basis of the requirement of the proposed single user of the system.

(c) No non-SMR licensee will be authorized an additional frequency pair for a conventional system within 64 kilometers (40 miles) of an existing conventional system, except where:

(1) The additional frequency pair will be used to provide radio facilities to a single entity and the additional frequency pair is justified on the basis of the requirements of the proposed single user; or,

(2) The licensee's existing frequency pair(s) is loaded to prescribed levels.

(d) No licensee will be authorized frequencies for a conventional system if that licensee is operating an unloaded trunked system or has an application pending for a trunked system to serve multiple subscribers within 64 km (40

miles) of the requested conventional system.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 44559, Sept. 29, 1983; 48 FR 51929, Nov. 15, 1983; 58 FR 44963, Aug. 25, 1993; 59 FR 59966, Nov. 21, 1994; 62 FR 18935, Apr. 17, 1997]

§ 90.625 Other criteria to be applied in assigning channels for use in conventional systems of communication.

(a) Where an applicant certifies on its application that a channel will be loaded to 70 mobile stations, that channel will be made available to that applicant for its exclusive use in the area in which it proposes to operate. If the showing made justifies the assignment of more than one channel to the applicant, additional frequencies will be authorized.

(b) Where an applicant proposes to furnish service to eligibles under subparts B or C of this part on a commercial basis using a conventional system of communication, the applicant will be considered on the same basis as that of an applicant for private or shared communication facilities.

(c) No person authorized to operate any radio facility under the provisions of this subpart shall have a right to protest proposals on grounds other than violation of or inconsistency with the provisions of this subpart. All grants are made subject to this condition and to the other conditions and standards set out in this subpart.

[47 FR 41032, Sept. 16, 1982, as amended at 62 FR 18935, Apr. 17, 1997; 63 FR 68969, Dec. 14, 1998]

§ 90.627 Limitation on the number of frequency pairs that may be assignable for trunked systems and on the number of trunked systems.

(a) The maximum number of frequency pairs that may be assigned at any one time for the operation of a trunked radio system is twenty, except as specified in § 90.621(a)(1)(iv).

(b) No non-SMR licensee will be authorized an additional trunked system within 64 kilometers (40 miles) of an existing trunked system, except where:

(1) The additional trunked system will be used to provide radio facilities for a single entity, where the additional system is justified on the basis of the requirements of the proposed single user; or,

(2) The licensee's existing trunked system is loaded to at least 70 mobile and control stations per channel.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 44559, Sept. 29, 1983; 48 FR 51929, Nov. 15, 1983; 49 FR 36377, Sept. 17, 1984; 51 FR 37404, Oct. 22, 1986; 53 FR 12157, Apr. 13, 1988; 58 FR 44963, Aug. 25, 1993; 59 FR 59966, Nov. 21, 1994]

§ 90.629 Extended implementation period.

Applicants requesting frequencies for either trunked or conventional operations may be authorized a period of up to five (5) years for constructing and placing a system in operation in accordance with the following:

(a) The applicant must justify an extended implementation period. The justification must describe the proposed system, state the amount of time necessary to construct and place the system in operation, identify the number of base stations to be constructed and placed in operation during each year of the extended construction period, and show that:

(1) The proposed system will require longer than twelve (12) months to construct and place in operation because of its purpose, size, or complexity; or

(2) The proposed system is to be part of a coordinated or integrated wide-area system which will require more than twelve (12) months to plan, approve, fund, purchase, construct, and place in operation; or

(3) The applicant is required by law to follow a multi-year cycle for planning, approval, funding, and purchasing the proposed system.

(b) Where an applicant is required by law to follow a multi-year cycle for planning, approval, funding and purchasing a proposed system, the applicant must indicate whether funding approval has been obtained and if not, when such funding approval is expected.

(c) Authorizations under this section are conditioned upon the licensee constructing and placing its system in operation within the authorized implementation period and in accordance with an approved implementation plan of up to five years. Licensees must notify the Commission annually, using

FCC Form 601, that they are in compliance with their yearly station construction commitments, but may request amendment to these commitments at the time they file their annual certification. If the Commission approves the requested amendments to a licensee's implementation commitments, the licensee's extended implementation authority will remain in effect. If, however, the Commission concludes, at this or any other time, that a licensee has failed to meet its commitments, the Commission will terminate authority for the extended implementation period. When the Commission terminates an extended implementation authority, the affected licensee will be given six months from the date of termination to complete system construction. At the end of any licensee's extended implementation period, authorizations for all stations not constructed and placed in operation will be cancelled. Trunked systems granted an extended implementation period must comply with the channel loading requirements of section 90.631(b). Conventional channels not loaded to 70 mobile units may be subject to shared use by the addition of other licensees.

(d) [Reserved]

(e) As of March 18, 1996, Specialized Mobile Radio systems are not eligible for extended implementation periods under this section. Additionally, all 800 MHz SMR licensees that are operating under extended implementation authority as of March 18, 1996 must, by May 16, 1996, demonstrate that continuing to allow them to have an extended period of time to construct their facilities is warranted and furthers the public interest. If a licensee's extended implementation authority showing is approved by the Bureau, such licensee will be afforded an extended implementation of two years or the remainder of its current extended implementation period, whichever is shorter. Upon the termination of this period, the authorizations for those facilities that remain unconstructed will terminate automatically. If a licensee with a current extended implementation period fails to submit the showing mentioned above within the designated timeframe or submits an insufficient or incomplete showing, such licensee will have six months from the last day on which it could timely file such a showing or from the disapproval of its request to construct the remaining facilities covered under its implementation plan to construct any unconstructed facilities for which it is authorized. The authorizations for those facilities remaining unconstructed after this six-month period will terminate automatically.

(f) Pursuant to § 90.155(b), the provisions of this section shall apply to local government entities applying for any frequency in the Public Safety Pool.

[58 FR 34379, June 25, 1993, as amended at 61 FR 6157, Feb. 16, 1996; 63 FR 68969, Dec. 14, 1998; 65 FR 60877, Oct. 13, 2000; 69 FR 67489, Nov. 22, 2004]

§ 90.631 Trunked systems loading, construction and authorization requirements.

(a) Non-SMR trunked systems will be authorized on the basis of a loading criteria of one hundred (100) mobile stations per channel. For purposes of determining compliance with trunked system loading requirements under this subpart, the term ''mobile station'' includes vehicular and portable mobile units and control stations.

(b) Each applicant for a non-SMR trunked system must certify that a minimum of seventy (70) mobiles for each channel authorized will be placed into operation within five (5) years of the initial license grant.

(c) Except for SMR applicants and as provided in paragraph (d) of this section, an applicant seeking to expand a trunked system by requesting additional channels from the Commission, or through intercategory sharing, or through an assignment, must have a loading level of seventy (70) mobiles per channel on the existing system that is the subject of the expansion request.

(d) In rural areas, a licensee of a trunked system may request to increase its system capacity by five more channels than it has constructed without meeting the loading requirements specified in paragraphs (b) and (c) of this section. A rural area is defined for purposes of this section as being beyond a 100-mile radius of the following

designated centers of the following urban areas: New York, NY; Los Angeles, CA; Chicago, IL; Philadelphia, PA; San Francisco, CA; Detroit, MI; Boston, MA; Houston, TX; Washington, DC; Dallas-Fort Worth, TX; Miami, FL; Cleveland, OH; St. Louis, MO; Atlanta, GA; Pittsburgh, PA; Baltimore, MD; Minneapolis-St. Paul, MN; Seattle, WA; San Diego, CA; and Tampa-St.Petersburg, FL. The coordinates for the centers of these areas are those referenced in § 90.741, except that the coordinates (referenced to North American Datum 1983 (NAD83)) for Tampa-St. Petersburg are latitude 28°00′1.1″ N, longitude 82°26′59.3″ W.

(e) Except as provided in § 90.629, licensees of trunked facilities must complete construction within one year.

(f) If a station is not placed in permanent operation, in accordance with the technical parameters of the station authorization, within one year, except as provided in § 90.629, its license cancels automatically. For purposes of this section, a base station is not considered to be placed in operation unless at least two associated mobile stations, or one control station and one mobile station, are also placed in operation. An SMR licensee with facilities that have discontinued operations for 90 continuous days is presumed to have permanently discontinued operations, unless the licensee notifies the Commission otherwise, using FCC Form 601, prior to the end of the 90 day period and provides a date on which operation will resume, which date must not be in excess of 30 additional days.

(g) Wide area systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. Remote or satellite stations of wide area systems in the Public Safety, Special Emergency, Telephone Maintenance, and Power Radio Services may be authorized on a primary basis if such stations are the first to be authorized in their area of operation on the frequency or group of frequencies. Remote or satellite stations of wide area systems in all other services will be authorized only on a secondary, non-interference basis to cochannel licensees. To determine system loading, the total number of mobile units and control stations operating in the wide-area system shall be counted with respect to the total number of base station frequencies assigned to the system.

(h) Regional, statewide, or ribbon configuration systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. In a ribbon, regional or statewide system, a mobile station will be counted for channel loading purposes only for the base station facility in the geographic area in which it primarily operates. If this cannot be determined, it will be counted fractionally over the number of base station facilities with which it communicates regularly.

[47 FR 41032, Sept. 16, 1982]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 90.631, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 90.633 Conventional systems loading requirements.

(a) Non-SMR conventional systems of communication will be authorized on the basis of a minimum loading criteria of seventy (70) mobile stations for each channel authorized.

(b) A channel will not be assigned to additional licensees when it is loaded to 70 mobile stations. Where a licensee does not load a channel to 70 mobiles the channel will be available for assignment to other licensees. All authorizations for conventional systems are issued subject to this potential channel sharing condition.

(c) Except as provided in § 90.629 of this part, licensees of conventional systems must place their authorized stations in operation not later than one year after the date of grant of the system license.

(d) If a station is not placed in operation within one year, except as provided in Section 90.629 of this part, the license cancels automatically. For purposes of this section, a base station is not considered to be in operation unless at least one associated mobile station is also in operation.

(e) A non-SMR licensee may apply for additional frequency pairs if its authorized conventional channel(s) is

loaded to seventy (70) mobiles. Applications may be considered for additional channels in areas where spectrum is still available and not applied for, even if the already authorized channel(s) is not loaded to 70 mobile units, upon an appropriate demonstration of need.

(f) Wide area systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. For loading purposes, if the total number of mobile stations justifies the total number of authorized based frequencies in a given area, the system will be construed to be loaded.

(g) Regional, statewide, or ribbon configuration systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. In a ribbon, regional or statewide system, a mobile station will be counted for channel loading purposes only for the base station facility in the geographic area in which it primarily operates. If this cannot be determined, it will be counted fractionally over the number of base station facilities with which it communicates regularly.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 56 FR 65860, Dec. 19, 1991; 59 FR 59966, Nov. 21, 1994; 62 FR 18935, Apr. 17, 1997; 64 FR 10397, Mar. 4, 1999]

TECHNICAL REGULATIONS REGARDING THE USE OF FREQUENCIES IN THE 806–824 MHZ, 851–869 MHZ, 896–901 MHZ, AND 935–940 MHZ BANDS

§ 90.635 Limitations on power and antenna height.

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TABLE—EQUIVALENT POWER AND ANTENNA HEIGHTS FOR BASE STATIONS IN THE 851–869 MHZ AND 935–940 MHZ BANDS WHICH HAVE A REQUIREMENT FOR A 32 KM (20 MI) SERVICE AREA RADIUS

Antenna height (ATT) meters (feet)	Effective radiated power (watts) [1 2 4]
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	[3] 1,000

[1] Power is given in terms of effective radiated power (ERP).

[2] Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.

[3] Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).

[4] Licensees in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

[70 FR 61062, Oct. 20, 2005]

§ 90.637 Restrictions on operational fixed stations.

(a) Except for control stations, operational fixed operations will not be authorized in the 806–824 MHz, 851–869 MHz, 896–901 MHz, or 935–940 MHz bands. This does not preclude secondary fixed tone signaling and alarm operations authorized in § 90.235 or in paragraph (c) of this section.

(b) Control stations associated with one or more mobile relay stations will be authorized only on the assigned frequency of the associated mobile station. Use of a mobile service frequency by a control station of a mobile relay system is subject to the condition that harmful interference shall not be caused to stations of licensees authorized to use the frequency for mobile service communications.

(c) Trunked and conventional systems that have exclusive-use status in their respective geographic areas may conduct fixed ancillary signaling and data transmissions subject to the following requirements:

(1) All operations must be on a secondary, non-interference basis to the primary mobile operation of any other licensee.

(2) The output power at the remote site must not exceed 30 watts.

(3) Any fixed transmitters will not count toward meeting the mobile loading requirements nor be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(4) Automatic means must be provided to deactivate the remote transmitter in the event the carrier remains on for a period in excess of three minutes.

(5) Operational fixed stations authorized pursuant to the provisions of paragraphs (c) and (d) of this section are exempt from the requirements of §§ 90.425 and 90.429.

(d) Conventional systems that do not have exclusive-use status in their respective geographic areas may conduct fixed ancillary signaling and data transmissions only in accordance with all the provisions of § 90.235.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 49 FR 36377, Sept. 17, 1984; 51 FR 37405, Oct. 22, 1986; 52 FR 1332, Jan. 13, 1987; 53 FR 12157, Apr. 13, 1988; 57 FR 34693, Aug. 6, 1992]

§ 90.645 Permissible operations.

Conventional and trunked radio systems may be used:

(a) Only for purposes expressly allowed under this part.

(b) Only persons who are eligible for facilities, either under this subpart or in the radio service included under subparts B or C of this part.

(c) Except for licensees classified as CMRS providers under part 20 of this chapter, only for the transmission of messages or signals permitted in the services is which the participants are eligible.

(d) For digital or analog transmissions.

(e) An SMRS licensee or a licensee who has been authorized a channel(s) on an exclusive basis, may use the system for the transmission of any base/mobile message, page or signal permitted in the service in which the participants are eligible.

(f) Where the channel(s) is assigned to an SMRS licensee or exclusively to a single licensee, or where all users of a system agree, more than a single emission may be utilized within the authorized bandwidth. In such cases, the frequency stability requirements of § 90.213 shall not apply, but out-of-band emission limits of § 90.209 shall be met.

(g) Up to five (5) contiguous 809–816/854–861 band channels as listed in §§ 90.615, 90.617, and 90.619 may be authorized after justification for systems requiring more than the normal single channel bandwidth. If necessary, licensees may trade channels amongst themselves in order to obtain contiguous frequencies. Notification of such proposed exchanges shall be made to the appropriate frequency coordinator(s) and to the Commission by filing an application for license modification.

(h) Up to 10 contiguous 896–901/935–940 MHz band channels as listed in § 90.617 may be combined for systems requiring more than the normal single channel bandwidth. If necessary, licensees may trade channels amongst themselves in order to obtain contiguous frequencies. Notification of such proposed exchanges shall be made to the appropriate frequency coordinator(s) and to the Commission by filing an application for license modification.

(i) Paging operations may be utilized on multiple licensed facilities (community repeaters) only when all licensees of the facility agree to such use.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 51 FR 37405, Oct. 22, 1986; 59 FR 59966, Nov. 21, 1994; 62 FR 18935, Apr. 17, 1997; 63 FR 68970, Dec. 14, 1998; 69 FR 67849, Nov. 22, 2004]

§ 90.647 Station identification.

(a) Conventional systems of communication shall be identified in accordance with existing regulations governing such matters.

(b) Trunked systems of communication, except as noted in paragraph (c) of this section, shall be identified through the use of an automatic device which transmits the call sign of the base station facility at 30 minute intervals. Such station identification shall be made on the lowest frequency in the base station trunk group assigned the licensee. Should this frequency be in use at the time station identification is required, such identification may be made at the termination of the communication in progress on this frequency. Identification may be made by voice or International Morse Code.

When the call sign is transmitted in International Morse Code, it must be at a rate of between 15 to 20 words per minute and by means of tone modulation of the transmitter, the tone frequency being between 800 and 1000 hertz.

(c) Stations operating in either the 806–824/851–869 MHz or 896–901/935–940 MHz bands that are licensed on an exclusive basis, and normally employ digital signals for the transmission of data, text, control codes, or digitized voice may also be identified by digital transmission of the call sign. A licensee that identifies its station in this manner must provide the Commission, upon its request, information sufficient to decode the digital transmission and ascertain the call sign transmitted.

(d) Notwithstanding the requirements set forth in this paragraph, systems operated by geographic area CMRS licensees are subject only to the station identification requirements of § 90.425(e).

[47 FR 41032, Sept. 16, 1982, as amended at 58 FR 12177, Mar. 3, 1993; 65 FR 24420, Apr. 26, 2000]

§ 90.651 Supplemental reports required of licensees authorized under this subpart.

Licensees of conventional systems must notify the Commission in accordance with § 1.946 of this chapter of the number of mobile units placed in operation within their construction period.

[63 FR 68970, Dec. 14, 1998]

EDITORIAL NOTE: At 63 FR 10397, Mar. 4, 1999, § 90.651 was amended by revising paragraph (c), effective Apr. 5, 1999. However, § 90.651, as revised at 63 FR 68970, Dec. 14, 1998, effective Feb. 12, 1999, does not contain paragraph (c), and the revision could not be made. For the convenience of the user, the revised text is set forth as follows:

§ 90.651 Supplemental reports required of licensees authorized under this subpart.

* * * * *

(c) Licensees of conventional systems must report the number of mobile units placed in operation within twelve months of the date of the grant of their license. Such reports shall be filed within 30 days from that date.

* * * * *

§ 90.655 Special licensing requirements for Specialized Mobile Radio systems.

End users of conventional or trunked Specialized Mobile Radio systems that have control stations that require FAA clearance, as specified in §§ 17.7 through 17.17 of this chapter, or that may have a significant environmental effect, as defined by § 1.1307, or that are located in a ''quiet zone'', as defined by § 1.924 of this chapter must be individually licensed for such control stations prior to construction or operation. All other end users' operations will be within the scope of the base station licensee. All end users, however, continue to be responsible to comply with 47 CFR part 90 and other federal laws.

[57 FR 40850, Sept. 8, 1992, as amended at 63 FR 68970, Dec. 14, 1998]

§ 90.656 Responsibilities of base station licensees of Specialized Mobile Radio systems.

(a) The licensees of base stations that provide Specialized Mobile Radio service on a commercial basis of the use of individuals, Federal government agencies, or persons eligible for licensing under either subparts B or C of this part will be responsible for exercising effective operational control over all mobile and control stations that communicate with the base station. The base station licensee will be responsible for assuring that its system is operated in compliance with all applicable rules and regulations.

(b) Customers that operate mobile units on a particular Specialized Mobile Radio system will be licensed to that system. A customer that operates temporarily on more than one system will be deemed, when communicating with the other system, to be temporarily licensed to the other system and for that temporary period, the licensee of the other system will assume the same licensee responsibility for the customer's mobile station(s) as if the customer's stations were licensed to that other system.

[57 FR 40851, Sept. 8, 1992, as amended at 62 FR 18935, Apr. 17, 1997]

POLICIES GOVERNING THE LICENSING AND USE OF MTA-BASED SMR SYSTEMS IN THE 896–901/935–940 MHZ BAND

§ 90.661 MTA-based SMR service areas.

MTA licenses for SMR spectrum blocks in the 896–901/935–940 MHz band listed in table 4B of § 90.617(d) are available in 51 Major Trading Areas (MTAs) as defined in § 90.7. Within these MTAs, licenses will be authorized in ten channel blocks as specified in table 4B of § 90.617(d) through the competitive bidding procedures described in subpart U of this part.

[60 FR 21991, May 4, 1995]

§ 90.663 MTA-based SMR system operations.

(a) MTA-based licensees authorized in the 896–901/935–940 MHz band pursuant to § 90.661 may construct and operate base stations using any frequency identified in their spectrum block anywhere within their authorized MTA, provided that:

(1) The MTA licensee affords protection, in accordance with § 90.621(b), to all sites for which applications were filed on or prior to August 9, 1994.

(2) The MTA licensee complies with any rules and international agreements that restrict use of frequencies identified in their spectrum block, including the provisions of § 90.619 relating to U.S./Canadian and U.S./Mexican border areas.

(3) The MTA licensee limits its field strength at any location on the border of the MTA service area in accordance with § 90.671 and masks its emissions in accordance with § 90.669.

(b) In the event that the authorization for a previously authorized co-channel station within the MTA licensee's authorized spectrum block is terminated or revoked, the MTA licensee's co-channel obligations to such station will cease upon deletion of the facility from the Commission's licensing record. The MTA licensee then will be able to construct and operate base stations using such frequency.

[60 FR 21991, May 4, 1995]

§ 90.665 Authorization, construction and implementation of MTA licenses.

(a) MTA licenses in the 896–901/935–940 MHz band will be issued for a term not to exceed ten years.

(b) MTA licensees in the 896–901/935–940 MHz band will be permitted five years to construct their stations. This five-year period will commence with the issuance of the MTA-wide authorization and will apply to all of the licensee's stations within the MTA spectrum block, including any stations that may have been subject to an earlier construction deadline arising from a pre-existing authorization.

(c) Each MTA licensee in the 896–901/935–940 MHz band must, three years from the date of license grant, construct and place into operation a sufficient number of base stations to provide coverage to at least one-third of the population of the MTA; further, each MTA licensee must provide coverage to at least two-thirds of the population of the MTA five years from the date of license grant. Alternatively, an MTA licensee must demonstrate, through a showing to the Commission five years from the date of license grant, that it is providing substantial service. An MTA licensee must, three years from license grant, either show that the ⅓ population coverage standard has been satisfied, or provide written notification that it has elected to show substantial service to the MTA five years from license grant. In addition, as part of the election to provide a substantial service showing, each MTA licensee must, three years from license grant, indicate how it expects to demonstrate substantial service at five years. The MTA licensee must meet the population coverage benchmarks regardless of the extent to which incumbent licensees are present within the MTA block.

(d) MTA licensees who fail to meet the coverage requirements imposed at either the third or fifth years of their license term, or to make a convincing showing of substantial service, will forfeit the portion of the MTA license

that exceeds licensed facilities constructed and operating on the date of the MTA license grant.

[60 FR 21991, May 4, 1995, as amended at 60 FR 48918, Sept. 21, 1995; 60 FR 61487, Nov. 30, 1995; 64 FR 39942, July 23, 1999]

§ 90.667 Grandfathering provisions for incumbent licensees.

(a) These provisions apply to all 900 MHz SMR licensees who obtained licenses or filed applications for secondary sites on or before August 9, 1994 (''incumbent licensees''), as well as to all 900 MHz SMR licensees who obtained authorizations pursuant to § 90.173(k). An incumbent licensee's service area shall be defined by its originally-licensed 40 dBu field strength contour. Incumbent licensees are permitted to add new or modify transmit sites in this existing service area without prior notification to the Commission so long as their original 40 dBu field strength contour is not expanded.

(b) Incumbent licensees operating at multiple sites may, after grant of MTA licenses has been completed, exchange multiple site licenses for a single license, authorizing operations throughout the contiguous and overlapping 40 dBu field strength contours of the multiple sites. Incumbents exercising this license exchange option must submit specific information for each of their external base sites after the close of the 900 MHz SMR auction.

(c) Applications in the 900 MHz SMR service for secondary sites filed after August 9, 1994 shall be authorized on a secondary, non-interference basis to MTA licensee operations. No secondary sites shall be granted on this basis in an MTA once the MTA licensee has been selected.

[60 FR 48918, Sept. 21, 1995]

§ 90.669 Emission limits.

(a) On any frequency in an MTA licensee's spectrum block that is adjacent to a non-MTA frequency, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 plus 10 $\log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation.

NOTE: The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

[60 FR 21992, May 4, 1995]

§ 90.671 Field strength limits.

The predicted or measured field strength at any location on the border of the MTA service area for MTA licensees shall not exceed 40 dBuV/m unless all bordering MTA licensees agree to a higher field strength. MTA licensees are also required to coordinate their frequency usage with so-channel adjacent MTA licensees and all other affected parties. To the extent that a single entity obtains licenses for adjacent MTAs on the same channel block, it will not be required to coordinate its operations in this manner. In the event that this standard conflicts with the MTA licensee's obligation to provide co-channel protection to incumbent licensees under § 90.621(b), the requirements of § 90.621(b) shall prevail.

[60 FR 21992, May 4, 1995]

PROCEDURES AND PROCESS—UNACCEPTABLE INTERFERENCE

§ 90.672 Unacceptable interference to non-cellular 800 MHz licensees from 800 MHz cellular systems or part 22 Cellular Radiotelephone systems, and within the 900 MHz Business/Industrial Land Transportation Pool.

(a) *Definition*. Except as provided in 47 CFR 90.617(k), unacceptable interference to non-cellular licensees in the 800 MHz band from 800 MHz cellular systems or part 22 of this chapter, Cellular Radiotelephone systems and within the 900 MHz Business/Industrial Land Transportation (B/ILT) Pool will be deemed to occur when the below conditions are met:

(1) A transceiver at a site at which interference is encountered:

(i) Is in good repair and operating condition, and is receiving:

(A) A median desired signal strength of −104 dBm or higher if operating in

the 800 MHz band, or a median desired signal strength of –88 dBm if operating in the 900 MHz B/ILT Pool, as measured at the R.F. input of the receiver of a mobile unit; or

(B) A median desired signal strength of −101 dBm or higher if operating in the 800 MHz band, or a median desired signal strength of –85 dBm if operating in the 900 MHz B/ILT Pool, as measured at the R.F. input of the receiver of a portable *i.e.*, hand-held unit; and either

(ii) Is a voice transceiver:

(A) With manufacturer published performance specifications for the receiver section of the transceiver equal to, or exceeding, the minimum standards set out in paragraph (b) of this section, and;

(B) Receiving an undesired signal or signals which cause the measured Carrier to Noise plus Interference (C/(I+N)) ratio of the receiver section of said transceiver to be less than 20 dB if operating in the 800 MHz band, or less than 17 dB if operating in the 900 MHz B/ILT Pool, or;

(iii) Is a non-voice transceiver receiving an undesired signal or signals which cause the measured bit error rate (BER) (or some comparable specification) of the receiver section of said transceiver to be more than the value reasonably designated by the manufacturer.

(2) Provided, however, that if the receiver section of the mobile or portable voice transceiver does not conform to the standards set out in paragraph (b) of this section, then that transceiver shall be deemed subject to unacceptable interference only at sites where the median desired signal satisfies the applicable threshold measured signal power in paragraphs (a)(1)(i) of this section after an upward adjustment to account for the difference in receiver section performance. The upward adjustment shall be equal to the increase in the desired signal required to restore the receiver section of the subject transceiver to the 20 dB C/(I+N) ratio of paragraph (a)(1)(ii)(B) of this section. The adjusted threshold levels shall then define the minimum measured signal power(s) in lieu of paragraphs (a)(1)(i) of this section at which the licensee using such non-compliant transceiver is entitled to interference protection.

(b) *Minimum Receiver Requirements*. Voice transceivers capable of operating in the 806–824 MHz portion of the 800 MHz band, or in the 900 MHz Business/Industrial Land Transportation Pool, shall have the following minimum performance specifications in order for the system in which such transceivers are used to claim entitlement to full protection against unacceptable interference. (See paragraph (a)(2) of this section.)

(1) Voice units intended for mobile use: 75 dB intermodulation rejection ratio; 75 dB adjacent channel rejection ratio; –116 dBm reference sensitivity.

(2) Voice units intended for portable use: 70 dB intermodulation rejection ratio; 70 dB adjacent channel rejection ratio; –116 dBm reference sensitivity.

(3) Voice units intended for mobile or portable use in the 900 MHz Business/Industrial Land Transportation Pool: 60 dB intermodulation rejection ratio; 60 dB adjacent channel rejection ratio; –116 dBm reference sensitivity.

[73 FR 67800, Nov. 17, 2008]

§ 90.673 Obligation to abate unacceptable interference.

(a) *Strict Responsibility*. Any licensee who, knowingly or unknowingly, directly or indirectly, causes or contributes to causing unacceptable interference to a non-cellular licensee in the 800 MHz band, as defined in this chapter, shall be strictly accountable to abate the interference, with full cooperation and utmost diligence, in the shortest time practicable. Interfering licensees shall consider all feasible interference abatement measures, including, but not limited to, the remedies specified in the interference resolution procedures set forth in this chapter. This strict responsibility obligation applies to all forms of interference, including out-of-band emissions and intermodulation.

(b) *Joint and Several Responsibility*. If two or more licensees knowingly or unknowingly, directly or indirectly, cause or contribute to causing unacceptable interference to a non-cellular licensee in the 800 MHz band, as defined in this chapter, such licensees shall be jointly and severally responsible for

abating interference, with full cooperation and utmost diligence, in the shortest practicable time. This joint and several responsibility rule requires interfering licensees to consider all feasible interference abatement measures, including, but not limited to, the remedies specified in the interference resolution procedures set forth in this chapter. This joint and several responsibility rule applies to all forms of interference, including out-of-band emissions and intermodulation.

(1) This joint and several responsibility rule requires interfering licensees to consider all feasible interference abatement measures, including, but not limited to, the remedies specified in the interference resolution procedures set forth in § 90.674(c). This joint and several responsibility rule applies to all forms of interference, including out-of-band emissions and intermodulation.

(2) Any licensee that can show that its signal does not directly or indirectly, cause or contribute to causing unacceptable interference to a non-cellular licensee in the 800 MHz band, as defined in this chapter, shall not be held responsible for resolving unacceptable interference. Notwithstanding, any licensee that receives an interference complaint from a public safety/CII licensee shall respond to such complaint consistent with the interference resolution procedures set forth in this chapter.

[69 FR 67849, Nov. 22, 2004]

§ 90.674 Interference resolution procedures before, during and after band reconfiguration.

(a) *Initial Notification.* Any non-cellular licensee operating in the 806–824/851–869 MHz band who reasonably believes it is receiving unacceptable interference, as described in § 90.672, shall provide an initial notification of the interference incident. This initial notification of an interference incident shall be sent to all part 22 of this chapter Cellular Radiotelephone licensees and ESMR licensees who operate cellular base stations (''cell sites'') within 1,524 meters (5,000 feet) of the interference incident.

(1) The initial notification of interference shall include the following information on interference:

(i) The specific geographical location where the interference occurs, and the time or times at which the interference occurred or is occurring;

(ii) A description of its scope and severity, including its source, if known;

(iii) The relevant Commission licensing information of the party suffering the interference; and

(iv) A single point of contact for the party suffering the interference.

(2) ESMR licensees, in conjunction with part 22 Cellular Radiotelephone licensees, shall establish an electronic means of receiving the initial notification described in paragraph (a)(1) of this section. The electronic system must be designed so that all appropriate 800 MHz ESMR and part 22 Cellular Radiotelephone licensees can be contacted about the interference incident with a single notification. The electronic system for receipt of initial notification of interference complaints must be operating no later than February 22, 2005.

(3) ESMR licensees must respond to the initial notification described in paragraph (a)(1) of this section, as soon as possible and no later than 24 hours of receipt of notification from a public safety/CII licensee. This response time may be extended to 48 hours after receipt from other non-cellular licensees provided affected communications on these systems are not safety related.

(b) *Interference analysis.* ESMR licensees—who receive an initial notification described in paragraph (a) of this section—shall perform a timely analysis of the interference to identify the possible source. Immediate on-site visits may be conducted when necessary to complete timely analysis. Interference analysis must be completed and corrective action initiated within 48 hours of the initial complaint from a public safety/CII licensee. This response time may be extended to 96 hours after the initial complaint from other non-cellular licensees provided affected communications on these systems are not safety related. Corrective action may be delayed if the affected licensee agrees in writing (which may be, but is not required to be, recorded via e-mail

or other electronic means) to a longer period.

(c) *Mitigation Steps.* (1) All 800 MHz cellular system licensees and part 22 of this chapter Cellular Radiotelephone licensees who are responsible for causing unacceptable interference shall take all affirmative measures to resolve such interference. 800 MHz cellular system licensees found to contribute to harmful interference, as defined in § 90.672, shall resolve such interference in the shortest time practicable. 800 MHz cellular system licensees and part 22 of this chapter Cellular Radiotelephone licensees must provide all necessary test apparatus and technical personnel skilled in the operation of such equipment as may be necessary to determine the most appropriate means of timely eliminating the interference. However, the means whereby interference is abated or the cell parameters that may need to be adjusted is left to the discretion of involved 800 MHz cellular system licensees and/or part 22 of this chapter Cellular Radiotelephone licensees, whose affirmative measures may include, but not be limited to, the following techniques:

(i) Increasing the desired power of the public safety signal;

(ii) Decreasing the power of the ESMR and/or part 22 Cellular Radiotelephone signal;

(iii) Modifying the ESMR and/or part 22 Cellular Radiotelephone systems antenna height;

(iv) Modifying the ESMR and/or part 22 Cellular Radiotelephone system antenna characteristics;

(v) Incorporating filters into ESMR and/or part 22 Cellular Radiotelephone system transmission equipment;

(vi) Permanently changing ESMR and/or part 22 Cellular Radiotelephone system frequencies; and

(vii) Supplying interference-resistant receivers to the affected public safety licensee(s). If this technique is used, in all circumstances, the ESMR and/or part 22 Cellular Radiotelephone licensees shall be responsible for all costs thereof.

(2) Whenever short-term interference abatement measures prove inadequate, the affected licensee shall, consistent with but not compromising safety, make all necessary concessions to accepting interference until a longer-term remedy can be implemented.

(3) *Discontinuing operations when clear and imminent danger exists.* When a public safety licensee determines that a continuing presence of interference constitutes a clear and imminent danger to life or property, the licensee causing the interference must discontinue the associated operation immediately, until a remedy can be identified and applied. The determination that a continuing presence exists that constitutes a clear and imminent danger to life or property, must be made by written statement that:

(i) Is in the form of a declaration, notarized affidavit, or statement under penalty or perjury, from an officer or executive of the affected public safety licensee;

(ii) Thoroughly describes the basis of the claim of clear and imminent danger;

(iii) Was formulated on the basis of either personal knowledge or belief after due diligence;

(iv) Is not proffered by a contractor or other third party; and

(v) Has been approved by the Chief of the Public Safety and Homeland Security Bureau or other designated Commission official. Prior to the authorized official making a determination that a clear and imminent danger exists, the associated written statement must be served by hand-delivery or receipted fax on the applicable offending licensee, with a copy transmitted by the fastest available means to the Washington, DC office of the Commission's Public Safety and Homeland Security Bureau.

[69 FR 67849, Nov. 22, 2004, as amended at 70 FR 76711, Dec. 28, 2005; 71 FR 69038, Nov. 29, 2006]

§ 90.675 Information exchange.

(a) *Prior coordination.* Public safety/CII licensees may notify an ESMR or part 22 Cellular Radiotelephone licensee that they wish to receive prior notification of the activation or modification of ESMR or part 22 Cellular Radiotelephone cell sites in their area. Thereafter, the ESMR or part 22 Cellular Radiotelephone licensee must provide the following information to the public safety/CII licensee at least 10

business days before a new cell site is activated or an existing cell site is modified:

(1) Location;

(2) Effective radiated power;

(3) Antenna height;

(4) Channels available for use.

(b) *Purpose of prior coordination.* The coordination of cell sites is for informational purposes only: public safety/CII licensees are not afforded the right to accept or reject the activation of a proposed cell or to unilaterally require changes in its operating parameters. The principal purposes of notification are to:

(1) Allow a public safety/CII licensee to advise the ESMR or part 22 Cellular Radiotelephone licensee whether it believes a proposed cell will generate unacceptable interference;

(2) Permit ESMR or part 22 Cellular Radiotelephone licensees to make voluntary changes in cell parameters when a public safety licensee alerts them to possible interference; and

(3) Rapidly identify the source if interference is encountered when the cell is activated.

(c) *Public safety information exchange.* (1) Upon request by an ESMR or part 22 Cellular Radiotelephone licensee, public safety/CII licensees who operate radio systems in the 806–824/851–869 MHz shall provide the operating parameters of their radio system to the ESMR or part 22 Cellular Radiotelephone licensee.

(2) Public safety licensees who perform the information exchange as described in this section must notify the appropriate ESMR and part 22 Cellular Radiotelephone licensees prior to any technical changes to their radio system.

EFFECTIVE DATE NOTE: At 69 FR 67849, Nov. 22, 2004, § 90.675 was added. This section contains information collection and recordkeeping requirements and will not become effective until approval has been given by the Office of Management and Budget.

§ 90.676 Transition administrator for reconfiguration of the 806–824/851–869 MHz band in order to separate cellular systems from non-cellular systems.

The Transition Administrator will be an independent party with no financial interest in any 800 MHz licensee; and will be selected by a committee representative of 800 MHz licensees. The Transition Administrator will serve both a ministerial role and a function similar to a special master in a judicial proceeding.

(a) The duties of the Transition Administrator will include, but not be limited to:

(1) Obtaining estimates from licensees regarding the cost of reconfiguring their systems and ensuring that estimates contain a firm work schedule. The Transition Administrator will retain copies of all estimates and make them available to the Commission on request.

(2) Mediating disputes regarding cost estimates for reconfiguring a system.

(3) Issuing the Draw Certificate to authorize and instruct the Letter of Credit Trustee to draw down on the Letter of Credit to pay relocation costs in connection with reconfiguring a licensee's system.

(4) Establishing a relocation schedule on a NPSPAC region-by-region basis, prioritizing the regions on the basis of population. However, should a given region be encountering unusually severe amounts of unacceptable interference, that region may be moved up in priority. Any party disputing such a change in priority may refer the matter to the Chief, Public Safety and Homeland Security Bureau, who hereby is delegated the authority to resolve such disputes. The Transition Administrator may direct that adjoining regions be reconfigured simultaneously when conditions so require.

(5) The Transition Administrator will coordinate relocation of a NPSPAC Region's NPSPAC channels with the relevant Regional Planning Committee(s) prior to commencing band reconfiguration in a NPSPAC Region.

(b) Once band reconfiguration commences in a given NPSPAC Region, the Transition Administrator will;

(1) Monitor the retuning schedule and resolve any schedule delays or refer same to the Chief, Public Safety and Homeland Security Bureau, for resolution;

(2) Coordinate with adjoining NPSPAC Regions to ensure that interference is not being caused to their existing facilities from relocated stations;

(3) Provide quarterly progress reports to the Commission in such detail as the Commission may require and include, with such reports, certifications by Nextel and the relevant licensees that relocation has been completed and that both parties agree on the amount received from the letter of credit proceeds in connection with relocation of the licensees' facilities. The report shall include description of any disputes that have arisen and the manner in which they were resolved. These quarterly reports need not be audited. The Transition Administrator may select the dates for filing the quarterly progress reports;

(4) Provide the Chief, Public Safety and Homeland Security Bureau, with an annual audited statement of relocation funds expended to date, including salaries and expenses of Transition Administrator. The Transition Administrator may select the date for filing the annual audited statement;

(5) Facilitate resolution of disputes by mediation; or referral of the parties to alternative dispute resolution services as described in § 90.677(d).

(6) Notify the Commission when band reconfiguration is complete in each 800 MHz NPSPAC Region and identify which vacant channels are exclusively available to eligible applicants in the Public Safety or Critical Infrastructure Industry Categories as set forth in §§ 90.615(a), (b) and 90.617(g), (h).

(c) The Transition Administrator may not serve as the repository of funds used in band reconfiguration, excepting such sums as Nextel may pay for the Transition Administrator's services. Moreover, the Transition Administrator will not be certified by the Commission as a frequency coordinator.

[69 FR 67849, Nov. 22, 2004, as amended at 70 FR 6760, Feb. 8, 2005; 70 FR 76711, Dec. 28, 2005; 71 FR 69038, Nov. 29, 2006]

§ 90.677 Reconfiguration of the 806–824/851–869 MHz band in order to separate cellular systems from non-cellular systems.

In order to facilitate reconfiguration of the 806–824/851–869 MHz band (''800 MHz band'') to separate high-density cellular systems from non-cellular systems, Nextel Communications, Inc. (Nextel) may relocate incumbents within the 800 MHz band by providing ''comparable facilities.'' For the limited purpose of band reconfiguration, the provisions of § 90.157 shall not apply and inter-category sharing will be permitted under all circumstances. Such relocation is subject to the following provisions:

(a) Within thirty days of Commission approval of the Transition Administrator, the Transition Administrator described in § 90.676 will provide the Commission with a schedule detailing when band reconfiguration shall commence for each NPSPAC Region. The plan should also detail—by NPSPAC Region—which relocation option each non-Nextel ESMR licensees has chosen. The Chief, Public Safety and Homeland Security Bureau will finalize and approve such a plan. The schedule shall provide for completion of band reconfiguration in no more than thirty-six months following release of a public notice announcing the start date of reconfiguration in the first NPSPAC region. Relocation will commence according to the schedule set by the Transition Administrator but all systems must have commenced reconfiguration within thirty months of release of a public notice announcing the start date of reconfiguration in the first NPSPAC region.

(b) *Voluntary negotiations.* Thirty days before the start date for each NPSPAC region other than Region 47 and Region 48, the Chief, Public Safety and Homeland Security Bureau will issue a public notice initiating a three-month voluntary negotiation period. During this voluntary negotiation period, Nextel and all incumbents may negotiate any mutually agreeable relocation agreement. Sprint Nextel and relocating incumbents may agree to conduct face-to-face negotiations or either party may elect to communicate

with the other party through the Transition Administrator.

(c) *Mandatory negotiations.* If no agreement is reached by the end of the voluntary period, a three-month mandatory negotiation period will begin during which both Sprint Nextel and the incumbents must negotiate in ''good faith.'' In Region 47, a 90-day mandatory negotiation period will begin 60 days after the effective date of the Third Report and Order and Third Further Notice of Proposed Rulemaking in WT Docket 02–55. In Region 48, a 90-day mandatory negotiation period will begin on March 21, 2011. Sprint Nextel and relocating incumbents may agree to conduct face-to-face negotiations or either party may elect to communicate with the other party through the Transition Administrator. All parties are charged with the obligation of utmost ''good faith'' in the negotiation process. Among the factors relevant to a ''good-faith'' determination are:

(1) Whether the party responsible for paying the cost of band reconfiguration has made a bona fide offer to relocate the incumbent to comparable facilities;

(2) The steps the parties have taken to determine the actual cost of relocation to comparable facilities; and

(3) Whether either party has unreasonably withheld information, essential to the accurate estimation of relocation costs and procedures, requested by the other party. The Transition Administrator may schedule mandatory settlement negotiations and mediation sessions and the parties must conform to such schedules.

(d) *Transition Administrator.* (1) The Transition Administrator, or other mediator, shall attempt to resolve disputes referred to it before the conclusion of the mandatory negotiation period as described in § 90.677(c) within thirty working days after the Transition Administrator has received a submission by one party and a response from the other party. Any party thereafter may seek expedited non-binding arbitration which must be completed within thirty days of the Transition Administrator's, or other mediator's recommended decision or advice. Should issues still remain unresolved after mediation or arbitration they shall be referred to the Chief, Public Safety and Homeland Security Bureau within ten days of the Transition Administrator's or other mediator's advice, or if arbitration has occurred, within ten days of the completion of arbitration. When referring an unresolved matter to the Chief, Public Safety and Homeland Security Bureau, the Transition Administrator shall forward the entire record on any disputed issues, including such dispositions thereof that the Transition Administrator has considered. Upon receipt of such record and advice, the Commission will decide the disputed issues based on the record submitted. The authority to make such decisions is delegated to the Chief, Public Safety and Homeland Security Bureau who may decide the disputed issue or designate it for an evidentiary hearing before an Administrative Law Judge. If the Chief, Public Safety and Homeland Security Bureau decides an issue, any party to the dispute wishing to appeal the decision may do so by filing with the Commission, within ten days of the effective date of the initial decision, a Petition for de novo review; whereupon the matter will be set for an evidentiary hearing before an Administrative Law Judge. Any disputes submitted to the Transition Administrator after the conclusion of the mandatory negotiation period as described in § 90.677(c) shall be resolved as described in § 90.677(d)(2).

(2) If no agreement is reached during either the voluntary or mandatory negotiating periods, all disputed issues shall be referred to the Transition Administrator, or other mediator, who shall attempt to resolve them. If disputed issues remain thirty working days after the end of the mandatory negotiation period, the Transition Administrator shall forward the record to the Chief, Public Safety and Homeland Security Bureau, together with advice on how the matter(s) may be resolved. The Chief, Public Safety and Homeland Security Bureau is hereby delegated the authority to rule on disputed issues, de novo. If the Chief, Public Safety and Homeland Security Bureau decides an issue, any party to the dispute wishing to appeal the decision

may do so by filing with the Commission, within ten days of the effective date of the initial decision, a Petition for de novo review; whereupon the matter will be set for an evidentiary hearing before an Administrative Law Judge.

(e) *Waiver Requests*. Incumbents who wish not to relocate according to the schedule may petition the Commission for a waiver of the relocation obligation. Such a waiver would only be granted on a strict non-interference basis.

(f) *Comparable Facilities*. The replacement system provided to an incumbent must be at least equivalent to the existing 800 MHz system with respect to the four factors described in § 90.699(d) part.

(g) *Information Exchange*. Absent agreement between parties, the Transition Administrator will be responsible for determining the information that relocating incumbents must supply in support of a relocation agreement.

(h) The relevant Regional Planning Committee shall be informed of any proposed changes to any NPSPAC channel.

[69 FR 67849, Nov. 22, 2004, as amended at 70 FR 76711, Dec. 28, 2005; 71 FR 52751, Sept. 7, 2006; 71 FR 69038, Nov. 29, 2006; 75 FR 35318, June 22, 2010; 76 FR 11683, Mar. 3, 2011]

POLICIES GOVERNING THE LICENSING AND USE OF EA-BASED SMR SYSTEMS IN THE 809–824/851–869 MHZ BAND

§ 90.681 EA-based SMR service areas.

EA licenses in for channels 711 through 830 and Spectrum Blocks A through V listed in Tables 4 and 5 of § 90.617 are available in 175 Economic Areas (EAs) as defined in § 90.7.

[69 FR 67852, Nov. 22, 2004]

§ 90.683 EA-based SMR system operations.

(a) EA-based licensees authorized in the 809–824/854–869 MHz band pursuant to § 90.681 of this part may construct and operate base stations using any of the base station frequencies identified in their spectrum block anywhere within their authorized EA, provided that:

(1) The EA licensee affords protection, in accordance with § 90.621(b), to all previously authorized co-channel stations that are not associated with another EA license;

(2) The EA licensee complies with any rules and international agreements that restrict use of frequencies identified in their spectrum block, including the provisions of § 90.619 relating to U.S./Canadian and U.S./Mexican border areas;

(3) The EA licensee limits the field strength of its base stations at any location on the border of the EA service area in accordance with § 90.689;

(4) Upon request by an incumbent licensee or the Commission, the EA licensees shall furnish the technical parameters, location and coordinates of the completion of the addition, removal, relocation or modification of any of its facilities within the EA. The EA licensee must provide such information within ten (10) days of receiving a written request.

(5) For any construction or alteration that would exceed the requirements of § 17.7 of this chapter, licensees must notify the appropriate Regional Office of the Federal Aviation Administration (FAA Form 7460–1) and file a request for antenna height clearance and obstruction marking and lighting specifications (FCC Forn 854) with the FCC, WTB, Support Services Branch, Gettysburg, PA 17325.

(6) Any additional transmitters placed in operation must not have a significant environmental effect as defined by §§ 1.1301 through 1.1319 of this chapter.

(b) In the event that the authorization for a previously authorized co-channel station within the EA licensee's spectrum block is terminated or revoked, the EA licensee's co-channel obligations to such station will cease upon deletion of the facility from the Commission's official licensing records, and the EA licensee then will be able to construct and operate without regard to that previous authorization.

[61 FR 6158, 6159, Feb. 16, 1996, as amended at 62 FR 41216, July 31, 1997; 63 FR 68970, Dec. 14, 1998; 69 FR 67852, Nov. 22, 2004]

§ 90.685 Authorization, construction and implementation of EA licenses.

(a) EA licenses in the 809–824/854–869 MHz band will be issued for a term not

to exceed ten years. Additionally, EA licensees generally will be afforded a renewal expectancy only for those stations put into service after August 10, 1996.

(b) EA licensees in the 809–824/854–869 MHz band must, within three years of the grant of their initial license, construct and place into operation a sufficient number of base stations to provide coverage to at least one-third of the population of its EA-based service area. Further, each EA licensee must provide coverage to at least two-thirds of the population of the EA-based service area within five years of the grant of their initial license. EA-based licensees may, in the alternative, provide substantial service to their markets within five years of the grant of their initial license. Substantial service shall be defined as: ''Service which is sound, favorable, and substantially above a level of mediocre service.''

(c) *Channel use requirement*. In addition to the population coverage requirements described in this section, we will require EA licensees in Channel blocks A, B and C in the 816–821/861–866 MHz band to construct 50 percent of the total channels included in their spectrum block in at least one location in their respective EA-based service area within three years of initial license grant and to retain such channel usage for the remainder of the construction period.

(d) An EA licensee's failure to meet the population coverage requirements of paragraphs (b) and (c) of this section, will result in forfeiture of the entire EA license. Forfeiture of the EA license, however, would not result in the loss of any constructed facilities authorized to the licensee prior to the date of the commencement of the auction for the EA licenses.

(e) EA licensees operating on channels listed in § 90.614(b) and (c) must implement an Enhanced Specialized Mobile Radio (ESMR) system—as defined in § 90.7—on their EA license and any associated site-based licenses prior to the expiration date of the EA license. EA licensees operating on these channels shall follow the construction notification procedures set forth in § 1.946(d) of this chapter. Failure to implement an ESMR system on their EA and site-based licenses before the expiration date of the EA license will result in termination of the EA license and any associated site-based licenses pursuant to § 1.946(c) of this chapter.

[62 FR 41216, July 31, 1997, as amended at 69 FR 67852, Nov. 22, 2004; 70 FR 6760, Feb. 8, 2005; 70 FR 76712, Dec. 28, 2005]

§ 90.687 Special provisions regarding assignments and transfers of authorizations for incumbent SMR licensees in the 809–824/854–869 MHz band.

An SMR license initially authorized on any of the channels listed in Tables 4 and 5 of § 90.617 may transfer or assign its channel(s) to another entity subject to the provisions of § 1.948 of this chapter and § 90.609(b). If the proposed transferee or assignee is the EA licensee for the spectrum block to which the channel is allocated, such transfer or assignment presumptively will be deemed to be in the public interest. However, such presumption will be rebuttable.

[69 FR 67852, Nov. 22, 2004]

§ 90.689 Field strength limits.

(a) For purposes of implementing §§ 90.689 through 90.699, predicted 36 and 40 dBμV/m contours shall be calculated using Figure 10 of § 73.699 of this chapter with a correction factor of −9 dB, and predicted 18 and 22 dBμV/m contours shall be calculated using Figure 10a of § 73.699 of this chapter with a correction factor of −9 dB.

(b) The predicted or measured field strength at any location on the border of the EA-based service area for EA licensees must not exceed 40 dBuV/m unless all bordering EA licensees agree to a higher field strength. In the event that this standard conflicts with the EA licensee's obligation to provide co-channel protection to incumbent licensees pursuant to § 90.621(b), the requirements of § 90.621(b) shall prevail.

[61 FR 6158, 6159, Feb. 16, 1996, as amended at 62 FR 41216, July 31, 1997]

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the ''outer'' channels included in an EA license and to

spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10$Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

§ 90.693 Grandfathering provisions for incumbent licensees.

(a) *General provisions*. These provisions apply to ''incumbent licensees,'' all 800 MHz licensees authorized in the 809–821/854–866 MHz band who obtained licenses or filed applications on or before December 15, 1995.

(b) *Spectrum blocks A through V*. An incumbent licensee's service area shall be defined by its originally licensed 40 dBμV/m field strength contour and its interference contour shall be defined as its originally-licensed 22 dBμV/m field strength contour. The ''originally-licensed'' contour shall be calculated using the maximum ERP and the actual height of the antenna above average terrain (HAAT) along each radial. Incumbent licensees are permitted to add, remove or modify transmitter sites within their original 22 dBμV/m field strength contour without prior notification to the Commission so long as their original 22 dBμV/m field strength contour is not expanded. Incumbent licensee protection extends only to its 40 dBμV/m signal strength contour. Pursuant to the minor modification notification procedures set forth in 1.947(b), the incumbent licensee must notify the Commission within 30 days of any change in technical parameters for stations that are authorized under a waiver of 90.621(b)(4), or that are authorized under 90.621(b)(5).

(c) Special provisions for spectrum blocks F1 through V. Incumbent licensees that have received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dBμV/m signal strength interference contour shall have their service area defined by their originally-licensed 36 dBμV/m field strength contour and their interference contour shall be defined as their originally-licensed 18 dBμV/m field strength contour. The ''originally-licensed'' contour shall be calculated using the maximum ERP and the actual HAAT along each radial. Incumbent licensees seeking to utilize an 18 dBμV/m signal strength interference contour shall first seek to obtain the consent of affected co-channel incumbents. When the consent of a co-channel licensee is withheld, an incumbent licensee may submit to any certified frequency coordinator an engineering study showing that interference will not occur, together with proof that the incumbent licensee has sought consent. Incumbent licensees are permitted to add, remove or modify transmitter sites within their original 18 dBμV/m field strength contour without prior notification to the Commission so long as their original 18 dBμV/m field strength contour is not expanded. Incumbent licensee protection extends only to its 36 dBμV/m signal strength contour. Pursuant to the minor modification notification procedures set forth in 1.947(b), the incumbent licensee must notify the Commission within 30 days of any change in technical parameters for stations that are authorized under a waiver of 90.621(b)(4), or that are authorized under 90.621(b)(5).

(d) *Consolidated license*—(1) *Spectrum blocks A through V*. Incumbent licensees operating at multiple sites may, after grant of EA licenses has been completed, exchange multiple site licenses

for a single license, authorizing operations throughout the contiguous and overlapping 40 dBμV/m field strength contours of the multiple sites. Incumbents exercising this license exchange option must submit specific information on Form 601 for each of their external base sites after the close of the 800 MHz SMR auction. The incumbent's geographic license area is defined by the contiguous and overlapping 22 dBμV/m contours of its constructed and operational external base stations and interior sites that are constructed within the construction period applicable to the incumbent. Once the geographic license is issued, facilities that are added within an incumbent's existing footprint and that are not subject to prior approval by the Commission will not be subject to construction requirements.

(2) *Special Provisions for Spectrum Blocks F1 through V.* Incumbent licensees that have received the consent of all affected parties or a certified frequency coordinator to utilize an 18 dBμV/m signal strength interference contour operating at multiple sites may, after grant of EA licenses has been completed, exchange multiple site licenses for a single license. This single site license will authorize operations throughout the contiguous and overlapping 36 dBμV/m field strength contours of the multiple sites. Incumbents exercising this license exchange option must submit specific information on Form 601 for each of their external base sites after the close of the 800 SMR auction. The incumbent's geographic license area is defined by the contiguous and overlapping 18 dBμV/m contours of its constructed and operational external base stations and interior sites that are constructed within the construction period applicable to the incumbent. Once the geographic license is issued, facilities that are added within an incumbent's existing footprint and that are not subject to prior approval by the Commission will not be subject to construction requirements.

[64 FR 71055, Dec. 20, 1999, as amended at 69 FR 67852, Nov. 22, 2004; 70 FR 6761, Feb. 8, 2005; 70 FR 61062, Oct. 20, 2005]

§ 90.699 Transition of the upper 200 channels in the 800 MHz band to EA licensing.

In order to facilitate provision of service throughout an EA, an EA licensee may relocate incumbent licensees in its EA by providing ''comparable facilities'' on other frequencies in the 800 MHz band. Such relocation is subject to the following provisions:

(a)–(c) [Reserved]

(d) *Comparable facilities.* The replacement system provided to an incumbent during an involuntary relocation must be at least equivalent to the existing 800 MHz system with respect to the following four factors:

(1) *System.* System is defined functionally from the end user's point of view (*i.e.*, a system is comprised of base station facilities that operate on an integrated basis to provide service to a common end user, and all mobile units associated with those base stations). A system may include multiple-licensed facilities that share a common switch or are otherwise operated as a unitary system, provided that the end user has the ability to access all such facilities. A system may cover more than one EA if its existing geographic coverage extends beyond the EA borders.

(2) *Capacity.* To meet the comparable facilities requirement, an EA licensee must relocate the incumbent to facilities that provide equivalent channel capacity. We define channel capacity as the same number of channels with the same bandwidth that is currently available to the end user. For example, if an incumbent's system consists of five 50 kHz (two 25 kHz paired frequencies) channels, the replacement system must also have five 50 kHz channels. If a different channel configuration is used, it must have the same overall capacity as the original configuration. Comparable channel capacity requires equivalent signaling capability, baud rate, and access time. In addition, the geographic coverage of the channels must be coextensive with that of the original system.

(3) *Quality of service.* Comparable facilities must provide the same quality of service as the facilities being replaced. Quality of service is defined to mean that the end user enjoys the same level of interference protection

on the new system as on the old system. In addition, where voice service is provided, the voice quality on the new system must be equal to the current system. Finally, reliability of service is considered to be integral to defining quality of service. Reliability is the degree to which information is transferred accurately within the system. Reliability is a function of equipment failures (*e.g.*, transmitters, feed lines, antennas, receivers, battery back-up power, etc.) and the availability of the frequency channel due to propagation characteristics (*e.g.*, frequency, terrain, atmospheric conditions, radio-frequency noise, etc.) For digital data systems, this will be measured by the percent of time the bit error rate exceeds the desired value. For analog or digital voice transmissions, this will be measured by the percent of time that audio signal quality meets an established threshold. If analog voice system is replaced with a digital voice system the resulting frequency response, harmonic distortion, signal-to-noise ratio, and reliability will be considered.

(4) *Operating costs.* Operating costs are those costs that affect the delivery of services to the end user. If the EA licensee provides facilities that entail higher operating cost than the incumbent's previous system, and the cost increase is a direct result of the relocation, the EA licensee must compensate the incumbent for the difference. Costs associated with the relocation process can fall into several categories. First, the incumbent must be compensated for any increased recurring costs associated with the replacement facilitates (*e.g.*, additional rental payments, increased utility fees). Second, increased maintenance costs must be taken into consideration when determining whether operating costs are comparable. For example, maintenance costs associated with analog systems may be higher than the costs of digital equipment because manufacturers are producing mostly digital equipment and analog replacement parts can be difficult to find. An EA licensee's obligation to pay increased operating costs will end five years after relocation has occurred.

(e)–(f) [Reserved]

[62 FR 41217, July 31, 1997, as amended at 77 FR 28798, May 16, 2012]

Subpart T—Regulations Governing Licensing and Use of Frequencies in the 220–222 MHz Band

SOURCE: 56 FR 19603, Apr. 29, 1991, unless otherwise noted.

§ 90.701 Scope.

(a) Frequencies in the 220–222 MHz band are available for land mobile and fixed use for both Government and non-Government operations. This subpart supplements part 1, subpart F of this chapter which establishes the requirements and conditions under which commercial and private radio stations may be licensed in the Wireless Telecommunications Services. The provisions of this subpart contain additional pertinent information for current and prospective licensees specific to the 220–222 MHz band.

(b)(1) Licensees granted initial authorizations for operations in the 220–222 MHz band from among applications filed on or before May 24, 1991 are referred to in this subpart as ''Phase I'' licensees;

(2) Applicants that filed initial applications for operations in the 220–222 MHz band on or before May 24, 1991 are referred to in this subpart as ''Phase I'' applicants; and

(3) All assignments, operations, stations, and systems of licensees granted authorizations from among applications filed for operations in the 220–222 MHz band on or before May 24, 1991 are referred to in this subpart as ''Phase I'' assignments, operations, stations, and systems, respectively.

(c)(1) Licensees granted initial authorizations for operations in the 220–222 MHz band from among applications filed after May 24, 1991 are referred to in this subpart as ''Phase II'' licensees;

(2) Applicants that filed initial applications for operations in the 220–222 MHz band after May 24, 1991 are referred to in this subpart as ''Phase II'' applicants; and

(3) All assignments, operations, stations, and systems of licensees granted

authorizations from among applications filed for operations in the 220–222 MHz band after May 24, 1991 are referred to in this subpart as ''Phase II'' assignments, operations, stations, and systems, respectively.

(d) The rules in this subpart apply to both Phase I and Phase II licensees, applicants, assignments, operations, stations, and systems, unless otherwise specified.

[62 FR 15993, Apr. 3, 1997, as amended at 63 FR 68971, Dec. 14, 1998]

§ 90.703 Eligibility.

The following persons are eligible for licensing in the 220–222 MHz band.

(a) Any person eligible for licensing under subparts B or C of this part.

(b) Any person proposing to provide communications service to any person eligible for licensing under subparts B or C of this part, on a not-for-profit, cost-shared basis.

(c) Any person eligible under this part proposing to provide on a commercial basis, station and ancillary facilities for the use of individuals, federal government agencies and persons eligible for licensing under subparts B or C of this part.

[56 FR 19603, Apr. 29, 1991, as amended at 60 FR 15495, Mar. 24, 1995; 62 FR 18935, Apr. 17, 1997]

§ 90.705 Forms to be used.

Phase II applications for EA, Regional, or Nationwide radio facilities under this subpart must be prepared in accordance with §§ 1.2105 and 1.2107 of this chapter. Phase II applications for radio facilities operating on public safety/mutual aid channels (Channels 161 through 170) or emergency medical channels (Channels 181 through 185) under this subpart must be prepared on FCC Form 601 and submitted or filed in accordance with § 1.913 of this chapter.

[63 FR 68971, Dec. 14, 1998, as amended at 67 FR 45375, July 9, 2002]

§ 90.709 Special limitations on amendment of applications and on assignment or transfer of authorizations licensed under this subpart.

(a) Except as indicated in paragraph (b) of this section, the Commission will not consent to the following:

(1) Any request to amend an application so as to substitute a new entity as the applicant;

(2) Any application to assign or transfer a license for a Phase I, non-nationwide system prior to the completion of construction of facilities; or

(3) Any application to transfer or assign a license for a Phase I nationwide system before the licensee has constructed at least 40 percent of the proposed system pursuant to the provisions of § 90.725(a) or § 90.725(h), as applicable.

(b) The Commission will grant the applications described in paragrpah (a) of this section if:

(1) the request to amend an application or to transfer or assign a license does not involve a substantial change in the ownership or control or the applicant; or

(2) The changes in the ownership or control of the applciant are involuntary due to the original applicant's insolvency, bankruptcy, incapacity, or death.

(c) The assignee or transferee of a Phase I nationwide system is subject to the construction benchmarks and reporting requirements of § 90.725. The assignee or transferee of a Phase I nationwide system is not subject to the entry criteria described in § 90.713.

(d) A licensee may partially assign any authorization in accordance with § 90.1019.

(e) The assignee or transferee of a Phase II system is subject to the provisions of §§ 90.1017 and 1.2111(a) of this chapter.

[56 FR 19603, Apr. 29, 1991, as amended at 57 FR 32449, July 22, 1992; 62 FR 15993, Apr. 3, 1997; 63 FR 49295, Sept. 15, 1998]

§ 90.711 Processing of Phase II applications.

(a) Phase II applications for authorizations on Channels 166 through 170 and Channels 181 through 185 will be processed on a first-come, first-served basis. When multiple applications are filed on the same day for these frequencies in the same geographic area, and insufficient frequencies are available to grant all applications (i.e., if all applications were granted, violation of the station separation provisions of § 90.723(k) of this part would result),

these applications will be considered mutually exclusive.

(1) All applications will first be considered to determine whether they are substantially complete and acceptable for filing. If so, they will be assigned a file number and put in pending status. If not, they will be dismissed.

(2) Except as otherwise provided in this section, all applications in pending status will be processed in the order in which they are received, determined by the date on which the application was received by the Commission in its Gettysburg, Pennsylvania office (or the address set forth at § 1.1102 of this chapter for applications requiring the fees established by part 1, subpart G of this chapter).

(3) Each application that is accepted for filing will then be reviewed to determine whether it can be granted. Frequencies will be assigned by the Commission pursuant to the provisions of § 90.723.

(4) An application which is dismissed will lose its place in the processing line.

(b) All applications for Channels 161 through 165 that comply with the applicable rules of this part shall be granted. Licensees operating on such channels shall cooperate in the selection and use of frequencies and resolve any instances of interference in accordance with the provisions of § 90.173.

(c) Phase II applications for authorization on all non-Government channels other than Channels 161 through 170 and 181 through 185 shall be processed in accordance with the provisions of subpart W of this part.

[62 FR 15993, Apr. 3, 1997, as amended at 63 FR 32590, June 12, 1998; 63 FR 68971, Dec. 14, 1998]

§ 90.713 Entry criteria.

(a) As set forth in § 90.717, four 5-channel blocks are available for nationwide, commercial use to non-Government, Phase I applicants. Applicants for these nationwide channel blocks must comply with paragraphs (b), (c), and (d) of this section.

(b)(1) An applicant must include certification that, within ten years of receiving a license, it will construct a minimum of one base station in at least 70 different geographic areas designated in the application; that base stations will be located in a minimum of 28 of the 100 urban areas listed in § 90.741; and that each base station will have all five assigned nationwide channels constructed and placed in operation (regularly interacting with mobile and/or portable units).

(2) An applicant must include certification that it will meet the construction requirements set forth in § 90.725.

(3) An applicant must include a ten-year schedule detailing plans for construction of the proposed system.

(4) An applicant must include an itemized estimate of the cost of constructing 40 percent of the system and operating the system during the first four years of the license term.

(5) An applicant must include proof that the applicant has sufficient financial resources to construct 40 percent of the system and operate the proposed land mobile system for the first four years of the license term; *i.e.*, that the applicant has net current assets sufficient to cover estimated costs or a firm financial commitment sufficient to cover estimated costs.

(c) An applicant relying on personal or internal resources for the showing required in paragraph (b) of this section must submit independently audited financial statements certified within one year of the date of the application showing net current assets sufficient to meet estimated construction and operating costs. An applicant must also submit an unaudited balance sheet, current within 60 days of the date of submission, that clearly shows the continued availability of sufficient net current assets to construct and operate the proposed system, and a certification by the applicant or an officer of the applicant organization attesting to the validity of the balance sheet.

(d) An applicant submitting evidence of a firm financial commitment for the showing required in paragraph (b) of this section must obtain the commitment from a bona fide commercially acceptable source, *e.g.*, a state or federally chartered bank or savings and loan institution, other recognized financial institution, the financial arm of a capital equipment supplier, or an investment banking house. If the lender is not a state or federally chartered bank

or savings and loan institution, other recognized financial institution, the financial arm of a capital equipment supplier, or an investment banking house, the lender must also demonstrate that it has funds available to cover the total commitments it has made. The lender's commitment shall contain a statement that the lender:

(1) Has examined the financial condition of the applicant including an audited financial statement, and has determined that the applicant is creditworthy;

(2) Has examined the financial viability of the proposed system for which the applicant intends to use the commitment; and

(3) Is willing, if the applicant is seeking a Phase I, commercial nationwide license, to provide a sum to the applicant sufficient to cover the realistic and prudent estimated costs of construction of 40 percent of the system and operation of the system for the first four years of the license term.

(e) A Phase II applicant for authorization in a geographic area for Channels 166 through 170 in the public safety/mutual aid category may not have any interest in another pending application in the same geographic area for Channels 166 through 170 in the public safety/mutual aid category, and a Phase II applicant for authorization in a geographic area for channels in the emergency medical category may not have any interest in another pending application in the same geographic area for channels in the emergency medical category.

[62 FR 15994, Apr. 3, 1997, as amended at 62 FR 18935, Apr. 17, 1997]

§ 90.715 Frequencies available.

(a) The following table indicates the channel designations of frequencies available for assignment to eligible applicants under this subpart. Frequencies shall be assigned in pairs, with base station frequencies taken from the 220–221 MHz band with corresponding mobile and control station frequencies being 1 MHz higher and taken from the 221–222 MHz band. Only the lower half of the frequency pair(s) is listed in the table. Use of these frequencies in the Mexican and Canadian border areas is subject to coordination with those countries. See paragraph (c) of this section for special provisions concerning use in the Mexico border area.

TABLE OF 220–222 MHZ CHANNEL DESIGNATIONS

Channel No.	Base frequency (MHz)
1	220.0025
2	.0075
3	.0125
4	.0175
5	.0225
6	.0275
7	.0325
8	.0375
9	.0425
10	.0475
11	.0525
12	.0575
13	.0625
14	.0675
15	.0725
16	.0775
17	.0825
18	.0875
19	.0925
20	.0975
21	220.1025
22	.1075
23	.1125
24	.1175
25	.1225
26	.1275
27	.1325
28	.1375
29	.1425
30	.1475
31	.1525
32	.1575
33	.1625
34	.1675
35	.1725
36	.1775
37	.1825
38	.1875
39	.1925
40	.1975
41	220.2025
42	.2075
43	.2125
44	.2175
45	.2225
46	.2275
47	.2325
48	.2375
49	.2425
50	.2475
51	.2525
52	.2575
53	.2625
54	.2675
55	.2725
56	.2775
57	.2825
58	.2875
59	.2925
60	.2975
61	220.3025
62	.3075
63	.3125
64	.3175

TABLE OF 220–222 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
65	.3225
66	.3275
67	.3325
68	.3375
69	.3425
70	.3475
71	.3525
72	.3575
73	.3625
74	.3675
75	.3725
76	.3775
77	.3825
78	.3875
79	.3925
80	.3975
81	220.4025
82	.4075
83	.4125
84	.4175
85	.4225
86	.4275
87	.4325
88	.4375
89	.4425
90	.4475
91	.4525
92	.4575
93	.4625
94	.4675
95	.4725
96	.4775
97	.4825
98	.4875
99	.4925
100	.4975
101	220.5025
102	.5075
103	.5125
104	.5175
105	.5225
106	.5275
107	.5325
108	.5375
109	.5425
110	.5475
111	.5525
112	.5575
113	.5625
114	.5675
115	.5725
116	.5775
117	.5825
118	.5875
119	.5925
120	.5975
121	220.6025
122	.6075
123	.6125
124	.6175
125	.6225
126	.6275
127	.6325
128	.6375
129	.6425
130	.6475
131	.6525
132	.6575
133	.6625
134	.6675

TABLE OF 220–222 MHZ CHANNEL DESIGNATIONS—Continued

Channel No.	Base frequency (MHz)
135	.6725
136	.6775
137	.6825
138	.6875
139	.6925
140	.6975
141	220.7025
142	.7075
143	.7125
144	.7175
145	.7225
146	.7275
147	.7325
148	.7375
149	.7425
150	.7475
151	.7525
152	.7575
153	.7625
154	.7675
155	.7725
156	.7775
157	.7825
158	.7875
159	.7925
160	.7975
161	220.8025
162	.8075
163	.8125
164	.8175
165	.8225
166	.8275
167	.8325
168	.8375
169	.8425
170	.8475
171	.8525
172	.8575
173	.8625
174	.8675
175	.8725
176	.8775
177	.8825
178	.8875
179	.8925
180	.8975
181	220.9025
182	.9075
183	.9125
184	.9175
185	.9225
186	.9275
187	.9325
188	.9375
189	.9425
190	.9475
191	.9525
192	.9575
193	.9625
194	.9675
195	.9725
196	.9775
197	.9825
198	.9875
199	.9925
200	220.9975

(b) The 200 channels are divided into three sub-bands as follows:

Channel No.	Sub-band	Frequencies (MHz)
1–40	A	220.0025–220.1975/221.0025–221.1975
41–160	C	220.2025–220.7975/221.2025–221.7975
161–200	B	220.8025–220.9975/221.8025–221.9975

(c) *U.S./Mexico border area.* (1) Channels 16–30, 45–60, 76–90, 106–120, 136–145, 156–165, 178–194 are available for primary use within the United States within 120 km (74.6 mi) of the Mexican border, subject to the power and antenna height conditions specified in § 90.729 and the use restrictions specified in §§ 90.717–90.721.

(2) Channels 195–200 are available to both the United States and Mexico in the border area on an unprotected basis. Use is limited to a maximum effective radiated power (ERP) of 2 watts and a maximum antenna height of 6.1 meters (20 ft) above ground.

(3) Channels allotted for primary Mexican use (1–15, 31–45, 61–75, 91–105, 121–135, 146–155, and 166–177) may be used in the border area subject to the condition that the power flux density not exceed − 86 dB(W/m^2) at or beyond any point on the border. Stations operating under this provision will be considered secondary and will not be granted protection from harmful interference from stations that have primary use of the frequencies.

[56 FR 19603, Apr. 29, 1991, as amended at 57 FR 55148, Nov. 24, 1992]

§ 90.717 Channels available for nationwide systems in the 220–222 MHz band.

(a) Channels 51–60, 81–90, and 141–150 are 10-channel blocks available to non-Government applicants only for nationwide Phase II systems.

(b) Channels 21–25, 26–30, 151–155, and 156–160 are 5-channel blocks available to non-Government applicants only for nationwide, commercial Phase I systems.

(c) Channels 111–115 and 116–120 are 5-channel blocks available for Government nationwide use only.

[62 FR 15994, Apr. 3, 1997]

§ 90.719 Individual channels available for assignment in the 220–222 MHz band.

(a) Channels 171 through 200 are available to both Government and non-Government Phase I applicants, and may be assigned singly or in contiguous channel groups.

(b) Channels 171 through 180 are available for any use by Phase I applicants consistent with this subpart.

(c) Channels 181 through 185 are set aside in Phase II for emergency medical use for applicants that meet the eligibility criteria of § 90.20(a)(1)(iii) or § 90.20(a)(2)(xiii).

(d) Channels 161 through 170 and 181 through 185 are the only 220–222 MHz channels available to Phase II non-nationwide, Government users.

[62 FR 15994, Apr. 3, 1997, as amended at 62 FR 18936, Apr. 17, 1997]

§ 90.720 Channels available for public safety/mutual aid.

(a) Part 90 licensees who meet the eligibility criteria of §§ 90.20(a)(1), 90.20(a)(2)(i), 90.20(a)(2)(ii), 90.20(a)(2)(iii), 90.20(a)(2)(iv), 90.20(a)(2)(vii), 90.20(a)(2)(ix), or 90.20(a)(2)(xiii) are authorized by this rule to use mobile and/or portable units on Channels 161–170 throughout the United States, its territories, and possessions to transmit:

(1) Communications relating to the immediate safety of life;

(2) Communications to facilitate interoperability among entities eligible under §§ 90.20(a)(1), 90.20(a)(2)(i), 90.20(a)(2)(ii), 90.20(a)(2)(iii), 90.20(a)(2)(iv), 90.20(a)(2)(vii), 90.20(a)(2)(ix), and 90.20(a)(2)(xiii); or

(3) Communications on behalf of and by members of organizations established for disaster relief purposes having an emergency radio communications plan (*i.e.*, licensees eligible under § 90.20(a)(2)(vii)) for the transmission of communications relating to the safety of life or property, the establishment and maintenance of temporary relief

facilities, and the alleviation of emergency conditions during periods of actual or impending emergency, or disaster, until substantially normal conditions are restored; for limited training exercises incidental to an emergency radio communications plan, and for necessary operational communications of the disaster relief organization or its chapter affiliates.

(b) Any Government entity and any non-Government entity eligible to obtain a license under §§ 90.20(a)(1), 90.20(a)(2)(i), 90.20(a)(2)(ii), 90.20(a)(2)(iii), 90.20(a)(2)(iv), 90.20(a)(2)(vii), 90.20(a)(2)(ix), or 90.20(a)(2)(xiii) is also eligible to obtain a license for base/mobile operations on Channels 161 through 170. Base/mobile or base/portable communications on these channels that do not relate to the immediate safety of life or to communications interoperability among the above-specified entities, may only be conducted on a secondary non-interference basis to such communications.

[62 FR 18936, Apr. 17, 1997]

§ 90.721 Other channels available for non-nationwide systems in the 220–222 MHz band.

(a) The channel groups listed in the following Table are available to both Government and non-Government Phase I applicants for trunked operations or operations of equivalent or greater efficiency for non-commercial or commercial operations.

TABLE 1—PHASE I TRUNKED CHANNEL GROUPS

Group No.	Channel Nos.
1	1–31–61–91–121
2	2–32–62–92–122
3	3–33–63–93–123
4	4–34–64–94–124
5	5–35–65–95–125
6	6–36–66–96–126
7	7–37–67–97–127
8	8–38–68–98–128
9	9–39–69–99–129
10	10–40–70–100–130
11	11–41–71–101–131
12	12–42–72–102–132
13	13–43–73–103–133
14	14–44–74–104–134
15	15–45–75–105–135
16	16–46–76–106–136
17	17–47–77–107–137
18	18–48–78–108–138
19	19–49–79–109–139
20	20–50–80–110–140

(b) The channels listed in the following Table are available to non-Government applicants for Phase II assignments in Economic Areas (EAs) and Regional Economic Area Groupings (REAGs) (*see* §§ 90.761 and 90.763).

TABLE 2—PHASE II EA AND REGIONAL CHANNEL ASSIGNMENTS

Assignment	Assignment area	Group Nos. (from table 1)	Channel Nos.
A	EA	2 and 13.	
B	EA	3 and 16.	
C	EA	5 and 18.	
D	EA	8 and 19.	
E	EA		171–180
F	REAG	1, 6, and 11.	
G	REAG	4, 9, and 14.	
H	REAG	7, 12, and 17.	
I	REAG	10, 15, and 20.	
J	REAG		186–200

[62 FR 15995, Apr. 3, 1997]

§ 90.723 Selection and assignment of frequencies.

(a) Phase II applications for frequencies in the 220–222 MHz band shall specify whether their intended use is for 10-channel nationwide systems, 10-channel EA systems, 15-channel Regional systems, public safety/mutual aid use, or emergency medical use. Phase II applicants for frequencies for public safety/mutual aid use or emergency medical use shall specify the number of frequencies requested. All frequencies in this band will be assigned by the Commission.

(b) Phase II channels will be assigned pursuant to §§ 90.717, 90.719, 90.720, 90.721, 90.761 and 90.763.

(c) Phase II applicants for public safety/mutual aid and emergency medical channels will be assigned only the number of channels justified to meet their requirements.

(d) Phase I base or fixed station receivers utilizing 221–222 MHz frequencies assigned from Sub-band A as designated in § 90.715(b) will be geographically separated from those Phase I base or fixed station transmitters utilizing 220–221 MHz frequencies removed 200 kHz or less and assigned from Sub-band B as follows:

GEOGRAPHIC SEPARATION OF SUB-BAND A; BASE OR FIXED STATION RECEIVERS AND SUB-BAND B; BASE OR FIXED STATION TRANSMITTERS EFFECTIVE

Separation distance (kilometers)	Radiated power (watts) [1]
0.0–0.3	([2])
0.3–0.5	5
0.5–0.6	10
0.6–0.8	20
0.8–2.0	25
2.0–4.0	50
4.0–5.0	100
5.0–6.0	200
Over 6.0	500

[1] Transmitter peak envelope power shall be used to determine effective radiated power.

[2] Stations separated by 0.3 km or less shall not be authorized. This table does not apply to the low-power channels 196–200. See § 90.729(c).

(e) Phase II licensees authorized on 220–221 MHz frequencies assigned from Sub-band B will be required to geographically separate their base station or fixed station transmitters from the base station or fixed station receivers of Phase I licensees authorized on 221–222 MHz frequencies 200 kHz removed or less in Sub-band A in accordance with the Table in paragraph (d) of this section. Such Phase II licensees will not be required to geographically separate their base station or fixed station transmitters from receivers associated with additional transmitter sites that are added by such Phase I licensees in accordance with the provisions of § 90.745(a).

(f) Phase II licensees with base or fixed stations transmitting on 220–221 MHz frequencies assigned from Sub-band B and Phase II licensees with base or fixed stations receiving on Sub-band A 221–222 MHz frequencies, if such transmitting and receiving frequencies are 200 kHz or less removed from one another, will be required to coordinate the location of their base stations or fixed stations to avoid interference and to cooperate to resolve any instances of interference in accordance with the provisions of § 90.173(b).

(g) Phase I licensees with base or fixed stations transmitting on 220–221 MHz frequencies assigned from Sub-band B and Phase I licensees with base or fixed stations receiving on Sub-band A 221–222 MHz frequencies (if such transmitting and receiving frequencies are 200 kHz or less removed from one another) that add, remove, or modify station sites in accordance with the provisions of § 90.745(a) will be required to coordinate such actions with one another to avoid interference and to cooperate to resolve any instances of interference in accordance with the provisions of § 90.173(b).

(h) Phase I licensees with base or fixed stations transmitting on 220–221 MHz frequencies assigned from Sub-band B that add, remove, or modify station sites in accordance with the provisions of § 90.745(a) will be required to coordinate such actions with Phase II licensees with base or fixed stations receiving on Sub-band A 221–222 MHz frequencies 200 kHz or less removed.

(i) A mobile station is authorized to transmit on any frequency assigned to its associated base station. Mobile units not associated with base stations (*see* § 90.720(a)) must operate on ''mobile'' channels.

(j) A licensee's fixed station is authorized to transmit on any of the licensee's assigned base station frequencies or mobile station frequencies.

(k) Except for nationwide assignments, the separation of co-channel Phase I base stations, or fixed stations transmitting on base station frequencies, shall be 120 kilometers. Except for Phase I licensees seeking license modification in accordance with the provisions of §§ 90.751 and 90.753, shorter separations between such stations will be considered by the Commission on a case-by-case basis upon submission of a technical analysis indicating that at least 10 dB protection will be provided to an existing Phase I station's predicted 38 dBu signal level contour. The existing Phase I station's predicted 38 dBu signal level contour shall be calculated using the F(50,50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential. The 10 dB protection to the existing Phase I station's predicted 38 dBu signal level contour shall be calculated using the F(50,10) field strength chart for Channels 7–13 in § 73.699 (Fig. 10a) of this chapter,

with a 9 dB correction factor for antenna height differential.

[62 FR 15995, Apr. 3, 1997, as amended at 62 FR 18936, Apr. 17, 1997; 63 FR 32590, June 12, 1998]

§ 90.725 Construction requirements for Phase I licensees.

(a) Licensees granted commercial nationwide authorizations will be required to construct base stations and placed those base stations in operation as follows:

(1) In at least 10 percent of the geographic areas designated in the application within two years of initial license grant, including base stations in at least seven urban areas listed in § 90.741 of this part;

(2) In at least 40 percent of the geographic areas designated in the application within four years of initial license grant, including base stations in at least 28 urban areas listed in § 90.741 of this part;

(3) In at least 70 percent of the geographic areas designated in the application within six years of initial license grant, including base stations in at least 28 urban areas listed in § 90.741 of this part;

(4) In all geographic areas designated in the application within ten years of initial license grant, including base stations in at least 28 urban areas listed in § 90.741 of this part.

(b) Licensees not meeting the two and four year criteria shall lose the entire authorization, but will be permitted a six month period to convert the system to non-nationwide channels, if such channels are available.

(c) Licensees not meeting the six and ten year criteria shall lose the authorizations for the facilities not constructed, but will retain exclusivity for constructed facilities.

(d) Each commercial nationwide licensee must file a system progress report on or before the anniversary date of the grant of its license after 2, 4, 6 and 10 years, demonstrating compliance with the relevant construction benchmark criteria.

(1) An overall status report of the system, that must include, but need not be limited to:

(i) A list of all sites at which base stations have been constructed, with antenna heights and effective radiated power specified for each site;

(ii) A list of all other known base station sites at which construction has not been completed; and

(iii) A construction and operational schedule for the next five-year period, including any known changes to the plan for construction and operation submitted with the licensee's original application for the system.

(2) An analysis of the system's compliance with the requirements of paragraph (a) of this section, with documentation to support representations of completed construction, including, but not limited to:

(i) Equipment purchase orders and contracts;

(ii) Lease or purchase contracts relating to antenna site arrangements;

(iii) Equipment and antenna identification (serial) numbers; and

(iv) Service agreements and visits.

(e) Beginning with its second license term, each nationwide licensee must file a progress report once every five years on the anniversary date of the grant of the first renewal of its authorization, including the information required by paragraph (d)(1) of this section.

(f) Licensees authorized Phase I non-nationwide systems, or authorized on Channels 161 through 170 or Channels 181 through 185, must construct their systems (*i.e.*, have all specified base stations constructed with all channels) and place their systems in operation, or commence service in accordance with the provisions of § 90.167, within twelve months of the initial license grant date. Authorizations for systems not constructed and placed in operation, or having commenced service, within twelve months from the date of initial license grant cancel automatically.

(g) A licensee that loses authorization for some or all of its channels due to failure to meet construction deadlines or benchmarks may not reapply for nationwide channels in the same category or for non-nationwide channels in the same category in the same geographic area for one year from the date the Commission takes final action affirming that those channels have been cancelled.

(h) The requirements and conditions of paragraphs (a) through (e) and paragraph (g) of this section apply to nationwide licensees that construct and operate stations for fixed or paging operations on a primary basis instead of, or in addition to, stations for land mobile operations on a primary basis except that, in satisfying the base station construction and placed in operation requirements of paragraph (a) of this section and the system progress report requirements of paragraphs (d) and (e) of this section, licensees operating stations for fixed operation on a primary basis instead of, or in addition to, stations for land mobile or paging operations on a primary basis in a given geographic area may demonstrate how such fixed stations are providing substantial service to the public in those geographic areas.

[56 FR 19603, Apr. 29, 1991, as amended at 56 FR 32517, July 17, 1991; 57 FR 32450, July 22, 1992; 58 FR 36363, July 7, 1993; 62 FR 15996, Apr. 3, 1997; 63 FR 49295, Sept. 15, 1998]

§ 90.727 Extended implementation schedules for Phase I licensees.

Except for nationwide and commercial systems, a period of up to three (3) years may be authorized for constructing and placing a system in operation if:

(a) The applicant submits justification for an extended implementation period. The justification must include reasons for requiring an extended construction period, the proposed construction schedule (with milestones), and must show either that:

(1) The proposed system will serve a large fleet of mobile units and will involve a multi-year cycle for its planning, approval, funding, purchase, and construction; or

(2) The proposed system will require longer than 8 months to place in operation because of its purpose, size, or complexity; or

(3) The proposed system is to be part of a coordinated or integrated area-wide system which will require more than 8 months to construct; or

(4) The applicant is a local governmental agency and demonstrates that the government involved is required by law to follow a multi-year cycle for planning, approval, funding, and purchasing the proposed system.

(b) Authorizations under this section are conditioned upon the licensee's compliance with the submitted extended implementation schedule. Failure to meet the schedule will result in loss of authorizations for facilities not constructed.

[56 FR 19603, Apr. 29, 1991, as amended at 56 FR 32517, July 17, 1991]

§ 90.729 Limitations on power and antenna height.

(a) The permissible effective radiated power (ERP) with respect to antenna heights for land mobile, paging, or fixed stations transmitting on frequencies in the 220–221 MHz band shall be determined from the following Table. These are maximum values and applicants are required to justify power levels requested.

ERP VS. ANTENNA HEIGHT TABLE [2]

Antenna height above average terrain (HAAT), meters	Effective radiated power, watts [1]
Up to 150	500
150 to 225	250
225 to 300	125
300 to 450	60
450 to 600	30
600 to 750	20
750 to 900	15
900 to 1050	10
Above 1050	5

[1] Transmitter PEP shall be used to determine ERP.
[2] These power levels apply to stations used for land mobile, paging, and fixed operations.

(b) The maximum permissible ERP for mobile units is 50 watts. Portable units are considered as mobile units. Licensees operating fixed stations or paging base stations transmitting on frequencies in the 221–222 MHz band may not operate such fixed stations or paging base stations at power levels greater than 50 watts ERP, and may not transmit from antennas that are higher than 7 meters above average terrain, except that transmissions from antennas that are higher than 7 meters above average terrain will be permitted if the effective radiated power of such transmissions is reduced below 50 watts ERP by 20 $\log_{10}(h/7)$ dB, where h is the height above average terrain (HAAT), in meters.

(c) Base station and fixed station transmissions on base station transmit Channels 196–200 are limited to 2 watts ERP and a maximum antenna HAAT of 6.1 meters (20 ft). Licensees authorized on these channels may operate at power levels above 2 watts ERP or with a maximum antenna HAAT greater than 6.1 meters (20 ft) if:

(1) They obtain the concurrence of all Phase I and Phase II licensees with base stations or fixed stations receiving on base station receive Channels 1–40 and located within 6 km of their base station or fixed station; and

(2) Their base station or fixed station is not located in the United States/Mexico or United States/Canada border areas.

[62 FR 15996, Apr. 3, 1997, as amended at 63 FR 32590, June 12, 1998]

§ 90.733 Permissible operations.

(a) Systems authorized in the 220–222 MHz band may be used:

(1)(i) For government and non-government land mobile operations, *i.e.*, for base/mobile and mobile relay transmissions, on a primary basis; or

(ii) For the following operations instead of or in addition to a licensee's land mobile operations: One-way or two-way paging operations on a primary basis by all non-Government Phase II licensees, fixed operations on a primary basis by all non-Government Phase II licensees and all Government licensees, one-way or two-way paging or fixed operations on a primary basis by all non-Government Phase I licensees, except that before a non-Government Phase I licensee may operate one-way or two-way paging or fixed systems on a primary basis instead of or in addition to its land mobile operations, it must meet the following requirements:

(A) A nationwide Phase I licensee must;

(*1*) Meet its two-year benchmark for the construction of its land mobile system base stations as prescribed in § 90.725(a); and

(*2*) Provide a new 10-year schedule, as required in § 90.713(b)(3), for the construction of the fixed and/or paging system it intends to construct instead of, or in addition to, its nationwide land mobile system; and

(*3*) Certify that the financial showings and all other certifications provided in demonstrating its ability to construct and operate its nationwide land mobile system, as required in §§ 90.713 (b), (c) and (d), remain applicable to the nationwide system it intends to construct consisting of fixed and/or paging operations on a primary basis instead of, or in addition to, its land mobile operations; or

(*4*) In lieu of providing the requirements of paragraph (a)(1)(ii)(A)(*3*) of this section, provide the financial showings and all other certifications required in §§ 90.713 (b), (c) and (d) to demonstrate its ability to construct and operate a nationwide system consisting of fixed and/or paging operations on a primary basis instead of, or in addition to, its land mobile operations.

(B) A non-nationwide Phase I licensee must first meet the requirement to construct its land mobile base station and place it in operation, or commence service (in accordance with § 90.167) as prescribed in § 90.725(f) or § 90.727, as applicable.

(2) Only by persons who are eligible for facilities under either this subpart or in the pools included in subpart B or C of this part.

(3) Except for licensees classified as CMRS providers under part 20 of this chapter, only for the transmission of messages or signals permitted in the services in which the participants are eligible.

(b) See § 90.720 of this part for permissible operations on mutual aid channels.

(c) For operations requiring less than a 4 kHz bandwidth, more than a single emission may be utilized within the authorized bandwidth. In such cases, the frequency stability requirements of § 90.213 do not apply, but the out-of-band emission limits of § 90.210(f) must be met.

(d) Licensees, except for licensees authorized on Channels 161 through 170 and 181 through 185, may combine any number of their authorized, contiguous channels (including channels derived from multiple authorizations) to form channels wider than 5 kHz.

(e) In combining authorized, contiguous channels (including channels derived from multiple authorizations) to form channels wider than 5 kHz, the emission limits in § 90.210(f) must be met only at the outermost edges of the contiguous channels. Transmitters shall be tested to confirm compliance with this requirement with the transmission located as close to the band edges as permitted by the design of the transmitter. The frequency stability requirements in § 90.213 shall apply only to the outermost of the contiguous channels authorized to the licensee. However, the frequency stability employed for transmissions operating inside the outermost contiguous channels must be such that the emission limits in § 90.210(f) are met over the temperature and voltage variations prescribed in § 2.995 of this chapter.

(f) A Phase I non-nationwide licensee operating a paging base station, or a fixed station transmitting on frequencies in the 220–221 MHz band, may only operate such stations at the coordinates of the licensee's authorized land mobile base station.

(g) The transmissions of a Phase I non-nationwide licensee's paging base station, or fixed station transmitting on frequencies in the 220–221 MHz band, must meet the requirements of §§ 90.723(d), (g), (h), and (k), and 90.729, and such a station must operate at the effective radiated power and antenna height-above-average-terrain prescribed in the licensee's land mobile base station authorization.

(h) Licensees using 220–222 MHz spectrum for geophysical telemetry operations are authorized to operate fixed stations on a secondary, non-interference basis to licensees operating in the 220–222 MHz band on a primary basis under the conditions that such licensees:

(1) Provide notification of their operations to co-channel non-nationwide Phase I licensees with an authorized base station, or fixed station transmitting on frequencies in the 220–221 MHz band, located within 45 km of the secondary licensee's station, to co-channel, Phase II EA or Regional licensee authorized to operate in the EA or REAG in which the secondary licensee's station is located, and to co-channel Phase I or Phase II nationwide licensees;

(2) Operate only at temporary locations in accordance with the provisions of § 1.931 of this chapter;

(3) Not transmit at a power level greater than one watt ERP;

(4) Not transmit from an antenna higher than 2 meters (6.6 feet) above ground; and

(5) Not operate on Channels 111 through 120, 161 through 170, or 181 through 185.

(i) All licensees constructing and operating base stations or fixed stations on frequencies in the 220–222 MHz band must:

(1) Comply with any rules and international agreements that restrict use of their authorized frequencies, including the provisions of § 90.715 relating to U.S./Mexican border areas;

(2) Comply with the provisions of § 17.6 of this chapter with regard to antenna structures; and

(3) Comply with the provisions of §§ 1.1301 through 1.1319 of this chapter with regard to actions that may or will have a significant impact on the quality of the human environment.

[56 FR 19603, Apr. 29, 1991, as amended at 56 FR 32517, July 17, 1991; 57 FR 32450, July 22, 1992; 59 FR 59967, Nov. 21, 1994; 62 FR 15997, Apr. 3, 1996; 62 FR 18936, Apr. 17, 1997; 63 FR 32591, June 12, 1998; 63 FR 68971, Dec. 14, 1998]

§ 90.735 Station identification.

(a) Except for nationwide systems authorized in the 220–222 MHz band, station identification is required pursuant to § 90.425 of this part.

(b) Trunked systems shall employ an automatic device to transmit the call sign of the base station at 30 minute intervals. The identification shall be made on the lowest frequency in the base station trunked group assigned to the licensee. If this frequency is in use at the time identification is required, the identification may be made at the termination of the communication in progress on this frequency.

(c) Station identification may be by voice or International Morse Code. If the call sign is transmitted in International Morse Code, it must be at a rate of between 15 to 20 words per minute, and by means of tone modulation of the transmitter, with the tone

frequency being between 800 and 1000 hertz.

(d) Digital transmissions may also be identified by digital transmission of the station call sign. A licensee that identifies its station in this manner must provide the Commission, upon its request, information (such as digital codes and algorithms) sufficient to decipher the data transmission to ascertain the call sign transmitted.

[56 FR 19603, Apr. 29, 1991, as amended at 62 FR 15997, Apr. 3, 1997]

§ 90.739 Number of systems authorized in a geographical area.

There is no limit on the number of licenses that may be authorized to a single licensee.

[62 FR 46214, Sept. 2, 1997]

§ 90.741 Urban areas for Phase I nationwide systems.

Licensees of Phase I nationwide systems must construct base stations, or fixed stations transmitting on frequencies in the 220–221 MHz band, in a minimum of 28 of the urban areas listed in the following Table within ten years of initial license grant. A base station, or fixed station, is considered to be within one of the listed urban areas if it is within 60 kilometers (37.3 miles) of the specified coordinates (coordinates are referenced to North American Datum 1983 (NAD83)).

TABLE

Urban area	North latitude	West longitude
New York, New York-Northeastern New Jersey	40°45′06.4″	73°59′37.5″
Los Angeles-Long Beach, California	34°03′15.0″	118°14′31.3″
Chicago, Illinois-Northwestern Indiana	41°52′28.1″	87°38′22.2″
Philadelphia, Pennsylvania/New Jersey	39°56′58.4″	75°09′19.6″
Detroit, Michigan	42°19′48.1″	83°02′56.7″
Boston, Massachusetts	42°21′24.4″	71°03′23.2″
San Francisco-Oakland, California	37°46′38.7″	122°24′43.9″
Washington, DC/Maryland/Virginia	38°53′51.4″	77°00′31.9″
Dallas-Fort Worth, Texas	32°47′09.5″	96°47′38.0″
Houston, Texas	29°45′26.8″	95°21′37.8″
St Louis, Missouri/Illinois	38°37′45.2″	90°12′22.4″
Miami, Florida	25°46′38.4″	80°11′31.2″
Pittsburgh, Pennsylvania	40°26′19.2″	79°59′59.2″
Baltimore, Maryland	39°17′26.4″	76°36′43.9″
Minneapolis-St Paul, Minnesota	44°58′56.9″	93°15′43.8″
Cleveland, Ohio	41°29′51.2″	81°41′49.5″
Atlanta, Georgia	33°45′10.4″	84°23′36.7″
San Diego, California	32°42′53.2″	117°09′24.1″
Denver, Colorado	39°44′58.0″	104°59′23.9″
Seattle-Everett, Washington	47°36′31.4″	122°20′16.5″
Milwaukee, Wisconsin	43°02′19.0″	87°54′15.3″
Tampa, Florida	27°56′59.1″	82°27′24.3″
Cincinnati, Ohio/Kentucky	39°06′07.2″	84°30′34.8″
Kansas City, Missouri/Kansas	39°04′56.0″	94°35′20.8″
Buffalo, New York	42°52′52.2″	78°52′20.1″
Phoenix, Arizona	33°27′12.2″	112°04′30.5″
San Jose, California	37°20′15.8″	121°53′27.8″
Indianapolis, Indiana	39°46′07.2″	86°09′46.0″
New Orleans, Louisiana	29°56′53.7″	90°04′10.3″
Portland, Oregon/Washington	45°31′05.4″	122°40′39.3″
Columbus, Ohio	39°57′47.2″	83°00′16.7″
Hartford, Connecticut	41°46′12.4″	72°40′47.3″
San Antonio, Texas	29°25′37.8″	98°29′07.1″
Rochester, New York	43°09′41.2″	77°36′20.0″
Sacramento, California	38°34′56.7″	121°29′44.8″
Memphis, Tennessee/Arkansas/Mississippi	35°08′46.3″	90°03′13.3″
Louisville, Kentucky/Indiana	38°14′47.3″	85°45′48.9″
Providence-Pawtucket-Warwick, RI/MA	41°49′32.4″	71°24′39.2″
Salt Lake City, Utah	40°45′22.8″	111°53′28.8″
Dayton, Ohio	39°45′32.2″	84°11′42.8″
Birmingham, Alabama	33°31′01.4″	86°48′36.0″
Bridgeport, Connecticut	41°10′49.3″	73°11′20.4″
Norfolk-Portsmouth, Virginia	36°51′10.5″	76°17′19.8″
Albany-Schenectady-Troy, New York	42°39′01.3″	73°44′59.4″
Oklahoma City, Oklahoma	35°28′26.2″	97°31′05.1″

TABLE—Continued

Urban area	North latitude	West longitude
Nashville-Davidson, Tennessee	36°09′33.2″	86°46′55.0″
Toledo, Ohio/Michigan	41°39′14.2″	83°32′38.8″
New Haven, Connecticut	41°18′25.3″	72°55′28.4″
Honolulu, Hawaii	21°18′48.6″	157°51′50.1″
Jacksonville, Florida	30°19′44.9″	81°39′41.3″
Akron, Ohio	41°05′00.2″	81°30′43.4″
Syracuse, New York	43°03′04.2″	76°09′12.7″
Worcester, Massachusetts	42°15′37.3″	71°48′15.3″
Tulsa, Oklahoma	36°09′12.3″	95°59′35.0″
Allentown-Bethlehem-Easton, PA/NJ	40°36′11.4″	75°28′04.7″
Richmond, Virginia	37°32′15.5″	77°26′07.9″
Orlando, Florida	28°32′43.0″	81°22′37.3″
Charlotte, North Carolina	35°13′44.5″	80°50′44.3″
Springfield-Chicopee-Holyoke, MA/CT	42°06′21.3″	72°35′30.3″
Grand Rapids, Michigan	42°58′03.1″	85°40′13.1″
Omaha, Nebraska/Iowa	41°15′42.0″	95°56′15.1″
Youngstown-Warren, Ohio	41°05′57.2″	80°39′01.3″
Greenville, South Carolina	34°50′50.4″	82°24′00.4″
Flint, Michigan	43°00′50.1″	83°41′32.8″
Wilmington, Delaware/New Jersey/Maryland	39°44′46.4″	75°32′49.7″
Raleigh-Durham/North Carolina	35°46′38.5″	78°38′20.0″
West Palm Beach, Florida	26°42′37.2″	80°03′06.1″
Oxnard-Simi Valley-Ventura, California	34°12′00.0″	119°11′03.4″
Fresno, California	36°44′11.8″	119°47′14.5″
Austin, Texas	30°16′09.8″	97°44′38.0″
Tucson, Arizona	32°13′15.3″	110°58′10.3″
Lansing, Michigan	42°44′01.1″	84°33′14.9″
Knoxville, Tennessee	35°57′39.3″	83°55′06.7″
Baton Rouge, Louisiana	30°26′58.7″	91°11′00.4″
El Paso, Texas	31°45′36.4″	106°29′13.0″
Tacoma, Washington	47°14′58.4″	122°26′19.4″
Mobile, Alabama	30°41′36.7″	88°02′33.0″
Harrisburg, Pennsylvania	40°15′43.3″	76°52′57.9″
Albuquerque, New Mexico	35°05′01.2″	106°39′07.1″
Canton, Ohio	40°47′50.2″	81°22′36.4″
Chattanooga, Tennessee/Georgia	35°02′41.3″	85°18′31.8″
Wichita, Kansas	37°41′30.1″	97°20′17.2″
Charleston, South Carolina	32°46′35.6″	79°55′52.3″
San Juan, Puerto Rico	18°27′52.8″	66°06′58.6″
Little Rock-North Little Rock, Arkansas	34°44′42.3″	92°16′37.5″
Las Vegas, Nevada	36°10′19.9″	115°08′40.0″
Columbia, South Carolina	34°00′02.6″	81°01′59.3″
Fort Wayne, Indiana	41°04′21.2″	85°08′25.9″
Bakersfield, California	35°22′30.9″	119°01′19.4″
Davenport-Rock Island-Moline, IA/IL	41°31′00.1″	90°35′00.5″
Shreveport, Louisiana	32°30′46.5″	93°44′58.6″
Des Moines, Iowa	41°35′14.0″	93°37′00.8″
Peoria, Illinois	40°41′42.1″	89°35′33.4″
Newport News-Hampton, Virginia	36°59′30.5″	76°25′58.8″
Jackson, Mississippi	32°17′56.5″	90°11′06.3″
Augusta, Georgia/South Carolina	33°28′20.5″	81°57′59.4″
Spokane, Washington	47°39′31.6″	117°25′36.8″
Corpus Christi, Texas	27°47′52.1″	97°23′46.0″
Madison, Wisconsin	43°04′23.0″	89°22′55.4″
Colorado Springs, Colorado	38°50′07.0″	104°49′17.9″

NOTE: The geographic coordinates are originally from the Department of Commerce publication of 1947: ''Air-line Distances Between Cities in the United States'' and from data supplied by the National Geodetic Survey and converted to the reference system of North American Datum 1983 using the National Geodetic Survey's NADCON program. The coordinates are determined by using the first city mentioned as the center of the urban area.

[63 FR 68971, Dec. 14, 1998]

§ 90.743 Renewal expectancy.

(a) All licensees seeking renewal of their authorizations at the end of their

license term must file a renewal application in accordance with the provisions of § 1.949 of this chapter. Licensees must demonstrate, in their application, that:

(1) They have provided ''substantial'' service during their past license term. ''Substantial'' service is defined in this rule as service that is sound, favorable, and substantially above a level of mediocre service that just might minimally warrant renewal; and

(2) They have substantially complied with applicable FCC rules, policies, and the Communications Act of 1934, as amended.

(b) In order to establish its right to a renewal expectancy, a renewal applicant must submit a showing explaining why it should receive a renewal expectancy. At a minimum, this showing must include:

(1) A description of its current service in terms of geographic coverage and population served;

(2) For an EA, Regional, or nationwide licensee, an explanation of its record of expansion, including a timetable of the construction of new stations to meet changes in demand for service;

(3) A description of its investments in its system;

(4) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and

(5) A list of any pending proceedings that relate to any matter described in this paragraph.

(c) Phase I non-nationwide licensees have license terms of 10 years, and therefore must meet these requirements 10 years from the date of initial authorization in order to receive a renewal expectancy. Phase I nationwide licensees and all Phase II licensees have license terms of 10 years, and therefore must meet these requirements 10 years from the date of initial authorization in order to receive a renewal expectancy.

[62 FR 15997, Apr. 3, 1997, as amended at 70 FR 61062, Oct. 20, 2005]

§ 90.745 Phase I licensee service areas.

(a) A Phase I licensee's service area shall be defined by the predicted 38 dBu service contour of its authorized base station or fixed station transmitting on frequencies in the 220–221 MHz band at its initially authorized location or at the location authorized in accordance with §§ 90.751, 90.753, 90.755 and 90.757 if the licensee has sought modification of its license to relocate its initially authorized base station. The Phase I licensee's predicted 38 dBu service contour is calculated using the F(50,50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential, and is based on the authorized effective radiated power (ERP) and antenna height-above-average-terrain of the licensee's base station or fixed station. Phase I licensees are permitted to add, remove, or modify transmitter sites within their existing service area without prior notification to the Commission so long as their predicted 38 dBu service contour is not expanded. The incumbent licensee must, however, notify the Commission within 30 days of the completion of any changes in technical parameters or additional stations constructed through a minor modification of its license. Such notification must be made by submitting the appropriate FCC form and must include the appropriate filing fee, if any. These minor modification applications are not subject to public notice and petition to deny requirements or mutually exclusive applications.

(b) Phase I licensees holding authorizations for service areas that are contiguous and overlapping may exchange these authorizations for a single license, authorizing operations throughout the contiguous and overlapping service areas. Phase I licensees exercising this license exchange option must submit specific information for each of their external base station sites.

[63 FR 32591, June 12, 1998]

§ 90.751 Minor modifications of Phase I, non-nationwide licenses.

Phase I non-nationwide licensees will be given an opportunity to seek modification of their license to relocate their initially authorized base station, i.e., locate their base station at a site

other than its initially authorized location. The conditions under which modifications will be granted and the procedures for applying for license modifications are described in §§ 90.753, 90.757 and 1.929 of this chapter. For CMRS licensees, these modifications will be treated as minor modifications in accordance with § 1.929 of this chapter.

[63 FR 68973, Dec. 14, 1998]

§ 90.753 Conditions of license modification.

(a) Except as provided in paragraphs (b), and (c) of this section, a Phase I non nationwide licensee may modify its authorization to relocate its authorized base station up to one-half the distance over 120 km toward any co-channel licensee's initially authorized base station, to a maximum distance of 8 km.

(b) A Phase I non-nationwide licensee with an authorized base station located outside a Designated Filing Area (DFA) (see Public Notice, DA 86–173, 52 FR 1302 (January 12, 1987)) may modify its authorization to relocate its authorized base station up to one-half the distance over 120 km toward any co-channel licensee's initially authorized base station, to a maximum distance of 25 km, so long as the base station is relocated no more than 8 km inside of any DFA (i.e., no more than 8 km from the nearest DFA boundary line).

(c) A Phase I non-nationwide licensee that has been granted Special Temporary Authority (STA) to operate at an alternative base station location may modify its authorization to seek permanent authorization at that location, regardless of whether locating the station at the STA site is in strict conformance with the provisions of paragraphs (a) and (b) of this section, if the licensee certifies that such a modification is in conformance with §§ 90.723 and 90.729 and:

(1) It has constructed its base station and has placed it in operation, or commenced service, at the STA site on or before January 26, 1996; or

(2) It has taken delivery of its base station transceiver on or before January 26, 1996.

(d) The application for a Phase I non-nationwide licensee proposing a base station modification resulting in less than 120 km separation from a co-channel licensee's initially authorized base station will be accepted by the Commission only with the consent of that co-channel licensee, as evidenced in a statement submitted concurrently with the licensee's application submission on FCC Form 601.

(e) The application of a Phase I non-nationwide licensee proposing a base station modification resulting in at least a 120 km separation from each co-channel licensee's initially authorized base station but more than one-half the distance over 120 km toward any co-channel licensee's initially authorized base station will be accepted by the Commission only with the consent of that co-channel licensee, as evidenced in a statement submitted concurrently with the licensee's submission on FCC Form 601.

[61 FR 3845, Feb. 2, 1996, as amended at 63 FR 68973, Dec. 14, 1998]

§ 90.757 Construction requirements.

(a) Except as provided in paragraph (b) of this section, a Phase I non-nationwide licensee that is granted modification of its authorization to relocate its base station must construct its base station and place it in operation, or commence service, on all authorized channels on or before August 15, 1996, or within 12 months of initial grant date, whichever is later. The authorization of a licensee that does not construct its base station and place it in operation, or commence service, by this date, cancels automatically and must be returned to the Commission.

(b) A Phase I non-nationwide licensee with a base station authorized at a location north of Line A must construct its base station and place it in operation, or commence service, on all authorized channels within 12 months of initial grant date, or within 12 months of the date of the release of the terms of an agreement between the United States and Canadian governments on the sharing of 220–222 MHz spectrum between the two countries, whichever is later. The authorization of a licensee that does not construct its base station and place it in operation, or commence

service, by this date, cancels automatically and must be returned to the Commission.

[61 FR 3845, Feb. 2, 1996]

POLICIES GOVERNING THE LICENSING AND USE OF PHASE II EA, REGIONAL AND NATIONWIDE SYSTEMS

SOURCE: 62 FR 15998, 15999, Apr. 3, 1997, unless otherwise noted.

§ 90.761 EA and Regional licenses.

(a) EA licenses for spectrum blocks listed in Table 2 of § 90.721(b) are available in 175 Economic Areas (EAs) as defined in § 90.7.

(b) Regional licenses for spectrum blocks listed in Table 2 of § 90.721(b) are available in six Regional Economic Area Groupings (REAGs) as defined in § 90.7.

§ 90.763 EA, Regional and nationwide system operations.

(a) A nationwide licensee authorized pursuant to § 90.717(a) may construct and operate any number of land mobile or paging base stations, or fixed stations, anywhere in the Nation, and transmit on any of its authorized channels, provided that the licensee complies with the requirements of § 90.733(i).

(b) An EA or Regional licensee authorized pursuant to § 90.761 may construct and operate any number of land mobile or paging base stations, or fixed stations, anywhere within its authorized EA or REAG, and transmit on any of its authorized channels, provided that:

(1) The licensee affords protection to all authorized co-channel Phase I nonnationwide base stations as follows:

(i) The EA or Regional licensee must locate its land mobile or paging base stations, or fixed stations transmitting on base station transmit frequencies, at least 120 km from the land mobile or paging base stations, or fixed stations transmitting on base station transmit frequencies, of co-channel Phase I licensees, except that separations of less than 120 km shall be considered on a case-by-case basis upon submission by the EA or Regional licensee of:

(A) A technical analysis demonstrating at least 10 dB protection to the predicted 38 dBu service contour of the co-channel Phase I licensee, *i.e.*, demonstrating that the predicted 28 dBu interfering contour of the EA or Regional licensee's base station or fixed station does not overlap the predicted 38 dBu service contour of the co-channel Phase I licensee's base station or fixed station; or

(B) A written letter from the co-channel Phase I licensee consenting to a separation of less than 120 km, or to less than 10 dB protection to the predicted 38 dBu service contour of the licensee's base station or fixed station.

(ii) The Phase I licensee's predicted 38 dBu service contour referred to in paragraph (a)(1)(i) of this section is calculated using the F(50,50) field strength chart for Channels 7–13 in § 73.699 (Fig. 10) of this chapter, with a 9 dB correction factor for antenna height differential, and is based on the licensee's authorized effective radiated power and antenna height-above-average-terrain. The EA or Regional licensee's predicted 28 dBu interfering contour referred to in paragraph (a)(1)(i) of this section is calculated using the F(50,10) field strength chart for Channels 7–13 in § 73.699 (Fig. 10a) of this chapter, with a 9 dB correction factor for antenna height differential.

(2) The licensee complies with the requirements of § 90.733(i).

(3) The licensee limits the field strength of its base stations, or fixed stations operating on base station transmit frequencies, in accordance with the provisions of § 90.771.

(4) Upon request by a licensee or the Commission, an EA or regional licensee shall furnish the technical parameters, location and coordinates of the completion of the addition, removal, relocation or modification of any of its facilities within the EA or region. The EA or regional licensee must provide such information within ten (10) days of receiving written notification.

(c) In the event that the authorization for a co-channel Phase I base station, or fixed station transmitting on base station transmit frequencies, within an EA or Regional licensee's border is terminated or revoked, the EA or Regional licensee's channel obligations to such stations will cease

upon deletion of the facility from the Commission's official licensing records, and the EA or Regional licensee then will be able to construct and operate without regard to the previous authorization.

[62 FR 15998, 15999, Apr. 3, 1997, as amended at 63 FR 68973, Dec. 14, 1998]

§ 90.765 Licenses term for Phase II licenses.

Nationwide licenses authorized pursuant to § 90.717(a), EA and Regional licenses authorized pursuant to § 90.761, and non-nationwide licenses authorized pursuant to §§ 90.720 and 90.719(c) will be issued for a term not to exceed ten years.

§ 90.767 Construction and implementation of EA and Regional licenses.

(a) An EA or Regional licensee must construct a sufficient number of base stations (*i.e.*, base stations for land mobile and/or paging operations) to provide coverage to at least one-third of the population of its EA or REAG within five years of the issuance of its initial license and at least two-thirds of the population of its EA or REAG within ten years of the issuance of its initial license. Licensees may, in the alternative, provide substantial service to their licensed areas at the appropriate five- and ten-year benchmarks.

(b) Licensees must notify the Commission in accordance with § 1.946 of this chapter of compliance with the Construction requirements of paragraph (a) of this section.

(c) Failure by an EA or Regional licensee to meet the construction requirements of paragraph (a) of this section, as applicable, will result in automatic cancellation of its entire EA or Regional license. In such instances, EA or Regional licenses will not be converted to individual, site-by-site authorizations for already constructed stations.

(d) EA and Regional licensees will not be permitted to count the resale of the services of other providers in their EA or REAG, *e.g.*, incumbent, Phase I licensees, to meet the construction requirement of paragraph (a) of this section, as applicable.

(e) EA and Regional licensees will not be required to construct and place in operation, or commence service on, all of their authorized channels at all of their base stations or fixed stations.

[69 FR 75172, Dec. 15, 2004]

§ 90.769 Construction and implementation of Phase II nationwide licenses.

(a) A nationwide licensee must construct a sufficient number of base stations (*i.e.*, base stations for land mobile and/or paging operations) to provide coverage to a composite area of at least 750,000 square kilometers or 37.5 percent of the United States population within five years of the issuance of its initial license and a composite area of at least 1,500,000 square kilometers or 75 percent of the United States population within ten years of the issuance of its initial license. Licensees may, in the alternative, provide substantial service to their licensed areas at the appropriate five- and ten-year benchmarks.

(b) Licensees must notify the Commission in accordance with § 1.946 of this chapter of compliance with the Construction requirements of paragraph (a) of this section.

(c) Failure by a nationwide licensee to meet the construction requirements of paragraph (a) of this section, as applicable, will result in automatic cancellation of its entire nationwide license. In such instances, nationwide licenses will not be converted to individual, site-by-site authorizations for already constructed stations.

(d) Nationwide licensees will not be required to construct and place in operation, or commence service on, all of their authorized channels at all of their base stations or fixed stations.

[69 FR 75173, Dec. 15, 2004]

§ 90.771 Field strength limits.

(a) The transmissions from base stations, or fixed stations transmitting on base station transmit frequencies, of EA and Regional licensees may not exceed a predicted 38 dBu field strength at their EA or REAG border. The predicted 38 dBu field strength is calculated using the F(50,50) field strength chart for Channels 7–13 in § 73.699 (Fig.

10) of this chapter, with a 9 dB correction factor for antenna height differential.

(b) Licensees will be permitted to exceed the predicted 38 dBu field strength required in paragraph (a) of this section if all affected, co-channel EA and Regional licensees agree to the higher field strength.

(c) EA and Regional licensees must coordinate to minimize interference at or near their EA and REAG borders, and must cooperate to resolve any instances of interference in accordance with the provisions of § 90.173(b).

Subpart U—Competitive Bidding Procedures for 900 MHz Specialized Mobile Radio Service

SOURCE: 60 FR 48919, Sept. 21, 1995, unless otherwise noted.

§ 90.801 900 MHz SMR spectrum subject to competitive bidding.

Mutually exclusive initial applications for 900 MHz SMR service licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 43575, July 9, 2002]

§§ 90.802–90.803 [Reserved]

§ 90.804 Aggregation of 900 MHz SMR licenses.

The Commission will license each 10-channel block in the 900 MHz SMR spectrum separately. Applicants may aggregate across spectrum blocks within the limitation specified in § 20.6(b) of this chapter.

§§ 90.805–90.806 [Reserved]

§ 90.807 Submission of upfront payments.

Each bidder in the 900 MHz SMR auction will be required to submit an upfront payment of $0.02 per MHz per pop, for the maximum number of licenses (in terms of MHz-pops) on which it intends to bid.

[67 FR 45376, July 9, 2002]

§ 90.808 [Reserved]

§ 90.809 License grants.

MTA licenses pursued through competitive bidding will be granted pursuant to the requirements specified in § 1.945 of this chapter.

[67 FR 45376, July 9, 2002]

§ 90.810 Bidding credits for small businesses.

A winning bidder that qualifies as a small business, as defined in § 90.814(b)(1), or a consortium of small businesses may use a bidding credit of 15 percent to lower the cost of its winning bid on any of the blocks identified in § 90.617(d), Table 4B. A winning bidder that qualifies as a small business, as defined in § 90.814(b)(2), or a consortium of small businesses may use a bidding credit of 10 percent to lower the cost of its winning bid on any of the blocks identified in § 90.617(d), Table 4B.

[68 FR 43000, July 21, 2003]

§ 90.811 Reduced down payment for licenses won by small businesses.

Each winning bidder that qualifies as a small business shall make a down payment equal to ten percent of its winning bid (less applicable bidding credits); a winning bidder shall bring its total amount on deposit with the Commission (including upfront payment) to five percent of its net winning bid within five (5) business days after the auction closes, and the remainder of the down payment (five percent) shall be paid within five (5) business days following Public Notice that the Commission is prepared to award the license. The Commission generally will grant the license within ten (10) business days after receipt of the remainder of the down payment.

§ 90.812 [Reserved]

§ 90.813 Partitioned licenses and disaggregated spectrum.

(a) *Eligibility*. Parties seeking approval for partitioning and disaggregation shall request an authorization for partial assignment of a license pursuant to § 1.948 of this chapter.

(b) *Technical standards*—(1) *Partitioning*. In the case of partitioning, requests for authorization for partial assignment of a license must include, as attachments, a description of the partitioned service area and a calculation of the population of the partitioned service area and the licensed geographic service area. The partitioned service area shall be defined by coordinate points at every 3 degrees along the partitioned service area unless an FCC recognized service area is utilized (*i.e.*, Major Trading Area, Basic Trading Area, Metropolitan Service Area, Rural Service Area or Economic Area) or county lines are followed. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1927 North American Datum (NAD27). Applicants may supply geographical coordinates based on 1983 North American Datum (NAD83) in addition to those required (NAD27). In the case where an FCC recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(2) *Disaggregation*. Spectrum may be disaggregated in any amount.

(3) *Combined partitioning and disaggregation*. The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(c) *Installment payments*—(1) *Apportioning the balance on installment payment plans*. When a winning bidder elects to pay for its license through an installment payment plan pursuant to § 90.812, and partitions its licensed area or disaggregates spectrum to another party, the outstanding balance owed by the licensee on its installment payment plan (including accrued and unpaid interest) shall be apportioned between the licensee and partitionee or disaggregatee. Both parties will be responsible for paying their proportionate share of the outstanding balance to the U.S. Treasury. In the case of partitioning, the balance shall be apportioned based upon the ratio of the population of the partitioned area to the population of the entire original license area calculated based upon the most recent census data. In the case of disaggregation, the balance shall be apportioned based upon the ratio of the amount of spectrum disaggregated to the amount of spectrum allocated to the licensed area.

(2) *Parties not qualified for installment payment plans*. (i) The partitionee or disaggregatee shall, as a condition of the approval of the partial assignment application, pay its entire pro rata amount within 30 days of Public Notice conditionally granting the partial assignment application. Failure to meet this condition will result in a rescission of the grant of the partial assignment application.

(ii) The licensee shall be permitted to continue to pay its pro rata share of the outstanding balance and shall receive new financing documents (promissory note, security agreement) with a revised payment obligation, based on the remaining amount of time on the original installment payment schedule. These financing documents will replace the licensee's existing financing documents which shall be marked ''superseded'' and returned to the licensee upon receipt of the new financing documents. The original interest rate, established pursuant to § 1.2110(g)(3)(i) of this chapter at the time of the grant of the initial license in the market, shall continue to be applied to the licensee's portion of the remaining government obligation. The Commission will require, as a further condition to approval of the partial assignment application, that the licensee execute and return to the U.S. Treasury the new financing documents within 30 days of the Public Notice conditionally granting the partial assignment application. Failure to meet this condition will result in the automatic cancellation of the grant of the partial assignment application.

(iii) A default on the licensee's payment obligation will only affect the licensee's portion of the market.

(3) *Parties qualified for installment payment plans*. (i) Where both parties to a partitioning or disaggregation agreement qualify for installment payments, the partitionee or disaggregatee will be

permitted to make installment payments on its portion of the remaining government obligation, as calculated according to paragraph (d)(1) of this section.

(ii) Each party will be required, as a condition to approval of the partial assignment application, to execute separate financing documents (promissory note, security agreement) agreeing to pay their pro rata portion of the balance due (including accrued and unpaid interest) based upon the installment payment terms for which they qualify under the rules. The financing documents must be returned to the U.S. Treasury within thirty (30) days of the Public Notice conditionally granting the partial assignment application. Failure by either party to meet this condition will result in the automatic cancellation of the grant of the partial assignment application. The interest rate, established pursuant to § 1.2110(g)(3)(i) of this chapter at the time of the grant of the initial license in the market, shall continue to be applied to both parties' portion of the balance due. Each party will receive a license for their portion of the partitioned market or disaggregated spectrum.

(iii) A default on an obligation will only affect that portion of the market area held by the defaulting party.

(iv) Partitionees and disaggregatees that qualify for installment payment plans may elect to pay some of their pro rata portion of the balance due in a lump sum payment to the U.S. Treasury and to pay the remaining portion of the balance due pursuant to an installment payment plan.

(d) *License term.* The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in § 90.665(a).

(e) *Construction requirements*—(1) *Requirements for partitioning.* Parties seeking authority to partition must meet one of the following construction requirements:

(i) The partitionee may certify that it will satisfy the applicable construction requirements set forth in § 90.665 for the partitioned license area; or

(ii) The original licensee may certify that it has or will meet the construction requirements set forth in § 90.665 for the entire market. In that case, the partitionee must only meet the requirements for renewal of its license for the partitioned license area.

(iii) Applications requesting partial assignments of license for partitioning must include a certification by each geographic area 800 MHz SMR licenses in the lower 230 channels will be awarded to small entities, as that term is defined by the SBA.

(iv) Partitionees must submit supporting documents showing compliance with the respective construction requirements within the appropriate time frames set forth in § 90.665.

(v) Failure by any partitionee to meet its respective performance requirements will result in the automatic cancellation of the partitioned or disaggregated license without further Commission action.

(2) *Requirements for disaggregation.* Parties seeking authority to disaggregate must submit with their partial assignment application a certification signed by both parties stating which of the parties will be responsible for meeting the construction requirements for the market as set forth in § 90.665. Parties may agree to share responsibility for meeting the construction requirements. Parties that accept responsibility for meeting the construction requirements and later fail to do so will be subject to license forfeiture without further Commission action.

[62 FR 41219, July 31, 1997, as amended at 67 FR 45376, July 9, 2002; 68 FR 43001, July 21, 2003]

§ 90.814 Definitions.

(a) *Scope.* The definitions in this section apply to §§ 90.810 through 90.813, unless otherwise specified in those sections.

(b) A small business is an entity that either:

(1) Together with its affiliates, persons or entities that hold attributable interests in such entity, and their affiliates, has average gross revenues that are not more than $3 million for the preceding three years; or

(2) Together with its affiliates, persons or entities that hold attributable

interests in such entity, and their affiliates, has average gross revenues that are not more than $15 million for the preceding three years.

[60 FR 48919, Sept. 21, 1995, as amended at 67 FR 45376, July 9, 2002; 68 FR 43001, July 21, 2003]

§ 90.815 Records maintenance and definitions.

(a) *Records maintenance.* All winning bidders qualifying as small businesses, shall maintain at their principal place of business an updated file of ownership, revenue and asset information, including any documents necessary to establish eligibility as a small business, pursuant to § 90.814, and/or a consortium of small businesses. Licensees (and their successors in interest) shall maintain such files for the term of the license.

(b) *Definitions.* The term *small business* used in this section is defined in § 90.814.

[68 FR 43001, July 21, 2003]

§ 90.816 Criteria for comparative 900 MHz SMR renewal proceedings.

(a) *Ultimate issue.* The ultimate issue in comparative renewal proceedings will be to determine, in light of the evidence adduced in the proceeding, what disposition of the applications would best serve the public interest, convenience and necessity.

(b) *Renewal expectancies.* The most important comparative factor to be considered in a comparative 900 MHz SMR renewal proceeding is a major preference, commonly referred to as a ''renewal expectancy''.

(1) The 900 MHz SMR renewal applicant involved in a comparative renewal proceeding will receive a renewal expectancy, if its past record for the relevant license period demonstrates that:

(i) The renewal applicant has provided ''substantial'' service during its past license term. ''Substantial'' service is defined as service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal; and

(ii) The renewal applicant has substantially complied with applicable FCC rules, policies and the Communications Act of 1934, as amended.

(2) In order to establish its right to a renewal expectancy, a 900 MHz renewal applicant involved in a comparative renewal proceeding must submit a showing explaining why it should receive a renewal expectancy. At a minimum, this showing must include:

(i) A description of its current service in terms of geographic coverage and population served;

(ii) An explanation of its record of expansion, including a timetable of the construction of new base sites to meet changes in demand for SMR service;

(iii) A description of its investments in its 900 MHz SMR system; and

(iv) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and a list of any pending proceedings that relate to any matter described in paragraph (b)(2) of this section.

(3) In making its showing of entitlement to a renewal expectancy, a renewal applicant may claim credit for any system modification applications that were pending on the date it filed its renewal application. Such credit will not be allowed if the modification application is dismissed or denied.

[60 FR 55485, Nov. 1, 1995]

Subpart V—Competitive Bidding Procedures for 800 MHz Specialized Mobile Radio Service

SOURCE: 61 FR 6159, Feb. 16, 1996, unless otherwise noted.

§ 90.901 800 MHz SMR spectrum subject to competitive bidding.

Mutually exclusive initial applications for 800 MHz band licenses in Spectrum Blocks A through V are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 45377, July 9, 2002]

§ 90.902 [Reserved]

§ 90.903 Competitive bidding mechanisms.

(a) *Sequencing*. The Wireless Telecommunications Bureau will establish and may vary the sequence in which 800 MHz SMR licenses for Spectrum Blocks A through V will be auctioned.

(b) *Grouping*. (1) All EA licenses for Spectrum Blocks A through V will be auctioned simultaneously, unless the Wireless Telecommunications Bureau announces, by Public Notice prior to the auction, an alternative method of grouping these licenses for auction.

(2) *Spectrum blocks D through V*. All EA licenses for Spectrum Blocks D through V will be auctioned by the following Regions:

(i) Region 1 (Northeast): The Northeast Region consists of the following MTAs: Boston-Providence, Buffalo-Rochester, New York, Philadelphia, and Pittsburgh.

(ii) Region 2 (South): The South Region consists of the following MTAs: Atlanta, Charlotte-Greensboro-Greenville-Raleigh, Jacksonville, Knoxville, Louisville-Lexington-Evansville, Nashville, Miami-Fort Lauderdale, Richmond-Norfolk, Tampa-St. Petersburg-Orlando, and Washington-Baltimore; and, Puerto Rico and United States Virgin Islands.

(iii) Region 3 (Midwest): The Midwest Region consists of the following MTAs: Chicago, Cincinnati-Dayton, Cleveland, Columbus, Des Moines-Quad Cities, Detroit, Indianapolis, Milwaukee, Minneapolis-St. Paul, and Omaha.

(iv) Region 4 (Central): The Central Region consists of the following MTAs: Birmingham, Dallas-Fort Worth, Denver, El Paso-Albuquerque, Houston, Kansas City, Little Rock, Memphis-Jackson, New Orleans-Baton Rouge, Oklahoma City, San Antonio, St. Louis, Tulsa, and Wichita.

(v) Region 5 (West): The West Region consists of the following MTAs: Honolulu, Los Angeles-San Diego, Phoenix, Portland, Salt Lake City, San Francisco-Oakland-San Jose, Seattle (including Alaska), and Spokane-Billings; and, American Samoa, Guam, and the Northern Mariana Islands.

[67 FR 45377, July 9, 2002]

§ 90.904 Aggregation of EA licenses.

The Commission will license each Spectrum Block A through V in the 800 MHz band separately. Applicants may aggregate across spectrum blocks within the limitations specified in § 20.6 of this chapter.

[62 FR 41221, July 31, 1997]

§ 90.905 [Reserved]

§ 90.909 License grants.

EA licenses pursued through competitive bidding procedures will be granted pursuant to the requirements specified in § 1.945 of this chapter.

[67 FR 45377, July 9, 2002]

§ 90.910 Bidding credits.

A winning bidder that qualifies as a very small business, as defined in § 90.912(b)(2), or a consortium of very small businesses may use a bidding credit of 35 percent to lower the cost of its winning bid on Spectrum Blocks A through V. A winning bidder that qualifies as a small business, as defined in § 90.912(b)(1), or a consortium of small businesses may use a bidding credit of 25 percent to lower the cost of its winning bid on Spectrum Blocks A through V.

[68 FR 43001, July 21, 2003]

§ 90.911 Partitioned licenses and disaggregated spectrum.

(a) *Eligibility*. Parties seeking approval for partitioning and disaggregation shall request an authorization for partial assignment of a license pursuant to § 90.153(c).

(b) *Technical standards*—(1) *Partitioning*. In the case of partitioning, requests for authorization for partial assignment of a license must include, as attachments, a description of the partitioned service area and a calculation of the population of the partitioned service area and the licensed geographic service area. The partitioned service area shall be defined by coordinate points at every 3 degrees along the partitioned service area unless an FCC recognized service area is utilized (*i.e.*, Major Trading Area, Basic Trading Area, Metropolitan Service Area, Rural Service Area or Economic Area) or

county lines are followed. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83). In the case where an FCC recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(2) *Disaggregation*. Spectrum may be disaggregated in any amount.

(3) *Combined partitioning and disaggregation*. The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(c) *License term*. The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in §§ 90.629(a), 90.665(a) or 90.685(a).

(d) *Construction and channel usage requirements—incumbent licensees*. Parties seeking to acquire a partitioned license or disaggregated spectrum from an incumbent licensee will be required to construct and commence ''service to subscribers'' all facilities acquired through such transactions within the original construction deadline for each facility as set forth in §§ 90.629 and 90.683. Failure to meet the individual construction deadline will result in the automatic termination of the facility's authorization.

(e) *Construction and channel usage requirements—EA licensees*—(1) *Licensees in channel blocks A, B and C*—(i) *Requirements for partitioning*. (A) The partitionee may certify that it will satisfy the applicable construction requirements set forth in § 90.685(c) for the partitioned license area; or

(B) The original licensee may certify that it has or will meet the three and five year construction requirements set forth in § 90.685(c) for the entire market.

(C) Applications requesting partial assignments of license for partitioning must include a certification by each party as to which of the above options they select.

(D) Partitionees must submit supporting documents showing compliance with the respective construction requirements within the appropriate time frames set forth in § 90.685(c).

(E) Failure by any partitionee to meet its respective construction requirements will result in the automatic cancellation of the partitioned license without further Commission action.

(ii) *Requirements for disaggregation*. Parties seeking authority to disaggregate spectrum from an EA licensee in Spectrum Blocks A, B and C must meet one of the following channel use requirements:

(A) The partitionee may certify that it will satisfy the channel usage requirements set forth in § 90.685(d) for the disaggregated spectrum; or

(B) The original licensee may certify that it has or will meet the channel usage requirements as set forth in § 90.685(d) for the entire spectrum block. In that case, the disaggregatee must only satisfy the requirements for ''substantial service,'' as set forth in § 90.685(c), for the disaggregated spectrum within five years of the license grant.

(C) Applications requesting partial assignments of license for disaggregation must include a certification by each party as to which of the above options they select.

(D) Disaggregatees must submit supporting documents showing compliance with the respective channel usage requirements within the appropriate time frames set forth in § 90.685(c).

(E) Failure by any disaggregatee to meet its respective channel usage requirements will result in the automatic cancellation of the disaggregated license without further Commission action.

(2) *Licensees in channel blocks D through V*—(i) *Requirements for partitioning*. Parties seeking authority to partition an EA license must meet one of the following construction requirements:

(A) The partitionee may certify that it will satisfy the applicable construction requirements set forth in § 90.685(c) for the partitioned license area; or

(B) The original licensee may certify that it has or will meet the construction requirements set forth in § 90.685(c) for the entire market.

(C) Applications requesting partial assignments of license for partitioning must include a certification by each party as to which of the above options they select.

(D) Partitionees must submit supporting documents showing compliance with the respective construction requirements within the appropriate time frames set forth in § 90.685(c).

(E) Failure by any partitionee to meet its respective construction requirements will result in the automatic cancellation of the partitioned license without further Commission action.

(ii) *Requirements for disaggregation.* Parties seeking authority to disaggregate must submit with their partial assignment application a certification signed by both parties stating which of the parties will be responsible for meeting the construction requirements for the market as set forth in § 90.685. Parties may agree to share responsibility for meeting the construction requirements. Parties that accept responsibility for meeting the construction requirements and later fail to do so will be subject to license forfeiture without further Commission action.

(f) *Certification concerning relocation of incumbent licensees.* Parties seeking approval of a partitioning or disaggregation agreement pursuant to this section must include a certification with their partial assignment of license application as to which party will be responsible for meeting the incumbent relocation requirements set forth at § 90.699.

[62 FR 41221, July 31, 1997, as amended at 63 FR 68973, Dec. 14, 1998; 67 FR 45377, July 9, 2002]

§ 90.912 Definitions.

(a) *Scope.* The definitions in this section apply to §§ 90.910 and 90.911, unless otherwise specified in those sections.

(b) *Small and very small businesses.* (1) A *small business* is an entity that together with its affiliates and controlling interests, has average gross revenues that do not exceed $15 million for the three preceding years; or

(2) A *very small business* is an entity that together with its affiliates and controlling interests, has average gross revenues that do not exceed $3 million for the three preceding years.

[62 FR 41222, July 31, 1997, as amended at 67 FR 45377, July 9, 2002; 68 FR 43001, July 21, 2003]

§ 90.913 Record maintenance and definitions.

(a) *Records maintenance.* All winning bidders qualifying as small or very small businesses, shall maintain at their principal place of business an updated file of ownership, revenue and asset information, including any document necessary to establish eligibility as a small or very small business, as defined in § 90.912, and/or consortium of small businesses (or consortium of very small businesses). Licensees (and their successors in interest) shall maintain such files for the term of the license.

(b) *Definitions.* The terms *small and very small business* used in this section are defined in § 90.912.

[68 FR 43001, July 21, 2003]

Subpart W—Competitive Bidding Procedures for the 220 MHz Service

SOURCE: 62 FR 15999, Apr. 3, 1997, unless otherwise noted.

§ 90.1001 220 MHz service subject to competitive bidding.

Mutually exclusive initial applications for 200 MHz geographic area licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 45377, July 9, 2002]

§§ 90.1003–90.1015 [Reserved]

§ 90.1017 Bidding credits for small businesses and very small businesses.

A winning bidder that qualifies as a small business, as defined in § 90.1021(b)(1), or a consortium of small businesses may use a bidding credit of

25 percent to lower the cost of its winning bid. A winning bidder that qualifies as a very small business, as defined in §90.1021(b)(2), or a consortium of very small businesses may use a bidding credit of 35 percent to lower the cost of its winning bid.

[68 FR 43001, July 21, 2003]

§90.1019 Eligibility for partitioned licenses.

(a) *Eligibility*. Parties seeking approval for partitioning and disaggregation shall request authorization for partial assignment of a license pursuant to §1.948 of this chapter. The Commission will consider applications that propose combinations of partitioning and disaggregation.

(1) Phase I non-nationwide licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum after constructing their systems and placing their in operation or commencing service in accordance with the provisions in §90.725(f) of this part.

(2) Phase I nationwide licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum after constructing at least 40 percent of the geographic areas designated in their applications in accordance with the provisions in §90.725(a) of this part.

(3) Phase II licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses.

(4) Phase I and Phase II licensees authorized to operate on Channels 161 through 170 or Channels 181 through 185 are not eligible to partition their geographic service area or disaggregate their licensed spectrum.

(b) *Partitioning*. In the case of partitioning, applicants and licensees must file FCC Form 603 pursuant to §1.948 and list the partitioned service area on a schedule to the application. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83). In the case where an FCC-recognized service area or county lines are utilized, applicants need only list the specific area(s) through use of FCC designations or county names that constitute the partitioned area.

(c) *License term*. The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term.

(d) *Construction requirements*. (1) Requirements for partitioning. Parties seeking authority to partition must meet one of the following construction requirements:

(i) The partitionee may certify that it will satisfy the applicable construction requirements set forth in §§90.767 or 90.769 of this part, as applicable, for the partitioned license area; or

(ii) The original licensee may certify that it has or will meet its five-year construction requirement and will meet the ten-year construction requirement, as set forth in §§90.767 or 90.769 of this part, as applicable, for the entire license area. In that case, the partitionee must only satisfy the requirements for ''substantial service,'' as set forth in §90.743(a)(1) of this part, for the partitioned license area by the end of the original ten-year license term of the licensee.

(iii) Failure by any partitionee to meet its respective construction requirements will result in the automatic cancellation of the partitioned license without further Commission action (*see* §1.946).

(2) *Requirements for disaggregation*. Parties seeking authority to disaggregate spectrum must certify in FCC Form 601 which of the parties will be responsible for meeting the five-year and ten-year construction requirements for the particular market as set forth in §90.767 or §90.769, as applicable. Parties may agree to share responsibility for meeting the construction requirements. If one party accepts responsibility for meeting the construction requirements and later fails to do so, then its license will cancel automatically without further Commission action. If both parties accept responsibility for meeting the construction requirements and later fail to do so, then

both their licenses will cancel automatically without further Commission action.

[63 FR 49295, Sept. 15, 1998, as amended at 63 FR 68973, Dec. 14, 1998; 65 FR 39560, June 27, 2000]

§ 90.1021 Definitions concerning competitive bidding process.

(a) *Scope*. The definitions in this section apply to §§ 90.1001 through 90.1025, unless otherwise specified in those sections.

(b) *Small and very small business*. (1) A *small business* is an entity that, together with its affiliates and controlling interests, has average gross revenues that are not more than $15 million for the preceding three years.

(2) A *very small business* is an entity that, together with its affiliates and controlling interests, has average gross revenues that are not more than $3 million for the preceding three years.

[62 FR 15999, Apr. 3, 1997, as amended at 67 FR 46376, July 9, 2002; 68 FR 43001, July 21, 2003]

§ 90.1023 Records maintenance and definitions.

(a) *Records maintenance*. All winning bidders qualifying as small or very small businesses shall maintain at their principal place of business an updated file of ownership, revenue, and asset information, including any documents necessary to establish eligibility as a small business or very small business, as defined in § 90.1021, and/or consortium of small businesses (or consortium of very small businesses). Licensees (and their successors-in-interest) shall maintain such files for the term of the license. Applicants that do not obtain the license(s) for which they applied shall maintain such files until the grant of such license(s) is final, or one year from the date of the filing of their short-form application (FCC Form 175), whichever is earlier.

(b) *Definitions*. The terms small and very small business used in this section are defined in § 90.1021.

[68 FR 43001, July 21, 2003]

§ 90.1025 Limitations on settlements.

The consideration that an individual or an entity will be permitted to receive for agreeing to withdraw an application or a petition to deny will be limited by the provisions set forth in § 1.2105(c) of this chapter.

[67 FR 46378, July 9, 2002]

Subpart X—Competitive Bidding Procedures for Location and Monitoring Service

SOURCE: 63 FR 40664, July 30, 1998, unless otherwise noted.

§ 90.1101 Location and Monitoring Service subject to competitive bidding.

Mutually exclusive initial applications for multilateration Location and Monitoring Service licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 45378, July 9, 2002]

§ 90.1103 Designated entities.

(a) This section addresses certain issues concerning designated entities in the Location and Monitoring Service (LMS) subject to competitive bidding.

(b) *Eligibility for small business provisions*. (1) A small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $15 million for the preceding three years.

(2) A very small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $3 million for the preceding three years.

(c) A winning bidder that qualifies as a small business, as defined in paragraph (b)(1) of this section, or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a very small businesses, as defined in paragraph (b)(2) of this section, or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(i) of this chapter.

[63 FR 40664, July 30, 1998, as amended at 67 FR 45379, July 9, 2002; 68 FR 43001, July 21, 2003]

Subpart Y—Regulations Governing Licensing and Use of Frequencies in the 4940–4990 MHz Band

SOURCE: 68 FR 38639, June 30, 2003, unless otherwise noted.

§90.1201 Scope.

This subpart sets out the regulations governing use of the 4940–4990 MHz (4.9 GHz) band. It includes eligibility requirements, and specific operational and technical standards for stations licensed in this band. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in this part; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in this band.

§90.1203 Eligibility.

(a) Entities providing public safety services as defined under section 90.523 are eligible to hold a Commission license for systems operating in the 4940–4990 MHz band. All of the requirements and conditions set forth in that section also govern authorizations in the 4940–4990 MHz band.

(b) 4.9 GHz band licensees may enter into sharing agreements or other arrangements for use of the spectrum with entities that do not meet these eligibility requirements. However, all applications in the band are limited to operations in support of public safety.

§90.1205 Permissible operations.

(a) Unattended and continuous operation is permitted.

(b) Voice, data and video operations are permitted.

(c) Aeronautical mobile operations are prohibited.

§90.1207 Licensing.

(a) A 4940–4990 MHz band license gives the licensee authority to operate on any authorized channel in this band within its licensed area of operation. *See* §90.1213. A 4940–4990 MHz band license will be issued for the geographic area encompassing the legal jurisdiction of the licensee or, in case of a nongovernmental organization, the legal jurisdiction of the state or local governmental entity supporting the nongovernmental organization.

(b) Subject to §90.1209, a 4940–4990 MHz band license gives the licensee authority to construct and operate any number of base stations anywhere within the area authorized by the license, except as follows:

(1) A station is required to be individually licensed if:

(i) International agreements require coordination;

(ii) Submission of an environmental assessment is required under §1.1307 of this chapter; or

(iii) The station would affect areas identified in §1.924 of this chapter.

(2) Any antenna structure that requires notification to the Federal Aviation Administration (FAA) must be registered with the Commission prior to construction under §17.4 of this chapter.

(c) A 4940–4990 MHz band license gives the licensee authority to operate base and mobile units (including portable and handheld units) and operate temporary (1 year or less) fixed stations anywhere within the area authorized by the license. Such licensees may operate base and mobile units and/or temporary fixed stations outside their authorized area to assist public safety operations with the permission of the jurisdiction in which the radio station is to be operated. Base and temporary fixed stations are subject to the requirements of paragraph (b) of this section.

(d) Permanent fixed point-to-point and point-to-multipoint stations in the 4940–4990 MHz band must be licensed individually on a site-by-site basis. Such fixed stations that connect 4940–4990 MHz band base and mobile stations that are used to deliver broadband service, as well as other public safety networks using spectrum designated for broadband use, are accorded primary status. Primary status is also accorded to stand-alone permanent fixed 4940–4990 MHz band links that are used to deliver broadband service. Primary permanent fixed point-to-point and point-to-multipoint stations must use directional antennas with gains greater than 9 dBi up to 26 dBi. Permanent fixed point-to-point stations that do

not meet the criteria for primary status will be authorized only on a secondary, non-interference basis to base, mobile, temporary fixed, and primary permanent fixed operations.

[68 FR 38639, June 30, 2003, as amended at 69 FR 17959, Apr. 6, 2004; 74 FR 23803, May 21, 2009]

§ 90.1209 Policies governing the use of the 4940–4990 MHz band.

(a) Channels in this band are available on a shared basis only and will not be assigned for the exclusive use of any licensee.

(b) All licensees shall cooperate in the selection and use of channels in order to reduce interference and make the most effective use of the authorized facilities. Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If licensees are unable to do so, the Commission may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further, the Commission may prohibit the use of any 4.9 GHz channel under a system license at a given geographical location when, in the judgment of the Commission, its use in that location is not in the public interest.

(c) Licensees will make every practical effort to protect radio astronomy operations as specified in § 2.106, footnote US311 of this chapter.

(d) There is no time limit for which base and temporary fixed stations authorized under a 4940–4990 MHz band license must be placed in operation. Fixed point-to-point stations which are licensed on a site-by-site basis must be placed in operation within 18 months of the grant date or the authorization for that station cancels automatically.

§ 90.1211 Regional plan.

(a) To facilitate the shared use of the 4.9 GHz band, each region may submit a plan on guidelines to be used for sharing the spectrum within the region. Any such plan must be submitted to the Commission within 12 months of the effective date of the rules.

(b) Such plans must incorporate the following common elements:

(1) Identification of the document as a plan for sharing the 4.9 GHz band with the region specified along with the names, business addresses, business telephone numbers and organizational affiliations of the chairperson(s) and all members of the planning committee.

(2) A summary of the major elements of the plan and an explanation of how all eligible entities within the region were given an opportunity to participate in the planning process and to have their positions heard and considered fairly.

(3) An explanation of how the plan was coordinated with adjacent regions.

(4) A description of the coordination procedures for both temporary fixed and mobile operations, including but not limited to, mechanisms for incident management protocols, interference avoidance and interoperability.

(c) Regional plans may be modified by submitting a written request, signed by the regional planning committee, to the Chief, Wireless Telecommunications Bureau. The request must contain the full text of the modification, and a certification that all eligible entities had a chance to participate in discussions concerning the modification and that any changes have been coordinated with adjacent regions.

EFFECTIVE DATE NOTE: At 69 FR 51959, Sept. 23, 2004, paragraph (a) of § 90.1211 was stayed indefinitely.

§ 90.1213 Band plan.

(a) The following channel center frequencies are permitted to be aggregated for channel bandwidths of 5, 10, 15 or 20 MHz as described in paragraph (b) of this section. Channel numbers 1 through 5 and 14 through 18 are 1 MHz bandwidth channels, and channel numbers 6 through 13 are 5 MHz bandwidth channels.

Center frequency (MHz)	Bandwidth (MHz)	Channel numbers
4940.5	1	1
4941.5	1	2
4942.5	1	3
4943.5	1	4
4944.5	1	5
4947.5	5	6
4952.5	5	7
4957.5	5	8
4962.5	5	9
4967.5	5	10

Center frequency (MHz)	Bandwidth (MHz)	Channel numbers
4972.5	5	11
4977.5	5	12
4982.5	5	13
4985.5	1	14
4986.5	1	15
4987.5	1	16
4988.5	1	17
4989.5	1	18

(b) The following tables list center frequencies to be licensed for aggregated channels only. A license may contain any combination of bandwidths from aggregated channels provided that the bandwidths do not overlap. The bandwidth edges (lower and upper frequencies) are provided to aid in planning.

(1) 5 MHz bandwidth aggregation:

Center frequency (MHz)	Channel Nos. employed	Lower frequency (MHz)	Upper frequency (MHz)
4942.5	1 to 5*	4940	4945
4947.5	6	4945	4950
4952.5	7	4950	4955
4957.5	8	4955	4960
4962.5	9	4960	4965
4967.5	10	4965	4970
4972.5	11	4970	4975
4977.5	12	4975	4980
4982.5	13	4980	4985
4987.5	14 to 18*	4985	4990

*Licensees should avoid using these channels in aggregations unless all other channels are blocked.

(2) 10 MHz bandwidth aggregation:

Center frequency (MHz)	Channel Nos. employed	Lower frequency (MHz)	Upper frequency (MHz)
4945	1 to 6*	4940	4950
4950	6 & 7	4945	4955
4955	7 & 8	4950	4960
4960	8 & 9	4955	4965
4965	9 & 10	4960	4970
4970	10 & 11	4965	4975
4975	11 & 12	4970	4980
4980	12 & 13	4975	4985
4985	13 to 18*	4980	4990

*Licensees should avoid using these channels in aggregations unless all other channels are blocked.

(3) 15 MHz bandwidth aggregation:

Center frequency (MHz)	Channel Nos. employed	Lower frequency (MHz)	Upper frequency (MHz)
4947.5	1 to 7*	4940	4955
4952.5	6 to 8	4945	4960
4957.5	7 to 9	4950	4965
4962.5	8 to 10	4955	4970
4967.5	9 to 11	4960	4975
4972.5	10 to 12	4965	4980
4977.5	11 to 13	4970	4985
4982.5	12 to 18*	4975	4990

*Licensees should avoid using these channels in aggregations unless all other channels are blocked.

(4) 20 MHz bandwidth aggregation:

Center frequency (MHz)	Channel Nos. employed	Lower frequency (MHz)	Upper frequency (MHz)
4950	1 to 8*	4940	4960

Center frequency (MHz)	Channel Nos. employed	Lower frequency (MHz)	Upper frequency (MHz)
4955	6 to 9	4945	4965
4960	7 to 10	4950	4970
4965	8 to 11	4955	4975
4970	9 to 12	4960	4980
4975	10 to 13	4965	4985
4980	11 to 18*	4970	4990

*Licensees should avoid using these channels in aggregations unless all other channels are blocked.

[77 FR 45506, Aug. 1, 2012, as amended at 78 FR 36684, June 19, 2013]

§ 90.1215 Power limits.

The transmitting power of stations operating in the 4940–4990 MHz band must not exceed the maximum limits in this section.

(a)(1) The maximum conducted output power should not exceed:

Channel bandwidth (MHz)	Low power maximum conducted output power (dBm)	High power maximum conducted output power (dBm)
1	7	20
5	14	27
10	17	30
15	18.8	31.8
20	20	33

(2) High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidths other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

(b) Low power devices are also limited to a peak power spectral density of 8 dBm per one MHz. Low power devices using channel bandwidths other than those listed above are permitted; however, they are limited to a peak power spectral density of 8 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi.

(c) The maximum conducted output power is measured as a conducted emission over any interval of continuous transmission using instrumentation calibrated in terms of an RMS-equivalent voltage. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true maximum conducted output power measurement conforming to the definitions in this paragraph for the emission in question.

(d) The peak power spectral density is measured as conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements are made over a bandwidth of one MHz or the 26 dB emission bandwidth of the device, whichever is less. A resolution bandwidth less than the measurement bandwidth can be used, provided that the measured power is integrated to show total power over the measurement bandwidth. If the resolution bandwidth is

approximately equal to the measurement bandwidth, and much less than the emission bandwidth of the equipment under test, the measured results shall be corrected to account for any difference between the resolution bandwidth of the test instrument and its actual noise bandwidth.

(e) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

[70 CFR 28467, May 18, 2005, as amended at 74 FR 23803, May 21, 2009; 74 FR 27455, June 10, 2009]

§90.1217 RF Hazards.

Licensees and manufacturers are subject to the radiofrequency radiation exposure requirements specified in §§1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of mobile or portable devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

Subpart Z—Wireless Broadband Services in the 3650–3700 MHz Band

SOURCE: 70 FR 24726, May 11, 2005, unless otherwise noted.

§90.1301 Scope.

This subpart sets out the regulations governing wireless operations in the 3650–3700 MHz band. It includes licensing requirements, and specific operational and technical standards for wireless operations in this band. The rules in this subpart are to be read in conjunction with the applicable requirements contained elsewhere in the Commission's rules; however, in case of conflict, the provisions of this subpart shall govern with respect to licensing and operation in this band.

§90.1303 Eligibility.

Any entity, other than those precluded by section 310 of the Communications Act of 1934, as amended, 47 U.S.C. 310, is eligible to hold a license under this part.

§90.1305 Permissible operations.

Use of the 3650–3700 MHz band must be consistent with the allocations for this band as set forth in part 2 of the Commission's Rules. All stations operating in this band must employ a contention-based protocol (as defined in §90.7).

§90.1307 Licensing.

The 3650–3700 MHz band is licensed on the basis of non-exclusive nationwide licenses. Non-exclusive nationwide licenses will serve as a prerequisite for registering individual fixed and base stations. A licensee cannot operate a fixed or base station before registering it under its license and licensees must delete registrations for unused fixed and base stations.

§90.1309 Regulatory status.

Licensees are permitted to provide services on a non-common carrier and/or on a common carrier basis. A licensee may render any kind of communications service consistent with the regulatory status in its license and with the Commission's rules applicable to that service.

§90.1311 License term.

The license term is ten years, beginning on the date of the initial authorization (non-exclusive nationwide license) grant. Registering fixed and base stations will not change the overall renewal period of the license.

§90.1312 Assignment and transfer.

Licensees may assign or transfer their non-exclusive nationwide licenses, and any fixed or base stations registered under those licenses will remain associated with those licenses.

§90.1319 Policies governing the use of the 3650–3700 MHz band.

(a) Channels in this band are available on a shared basis only and will not

be assigned for the exclusive use of any licensee.

(b) Any base, fixed, or mobile station operating in the band must employ a contention-based protocol.

(c) Equipment incorporating an unrestricted contention-based protocol (i.e. one capable of avoiding co-frequency interference with devices using all other types of contention-based protocols) may operate throughout the 50 megahertz of this frequency band. Equipment incorporating a restricted contention-based protocol (i.e. one that does not qualify as unrestricted) may operate in, and shall only tune over, the lower 25 megahertz of this frequency band.

(d) All applicants and licensees shall cooperate in the selection and use of frequencies in the 3650–3700 MHz band in order to minimize the potential for interference and make the most effective use of the authorized facilities. A database identifying the locations of registered stations will be available at *http://wireless.fcc.gov/uls*. Licensees should examine this database before seeking station authorization, and make every effort to ensure that their fixed and base stations operate at a location, and with technical parameters, that will minimize the potential to cause and receive interference. Licensees of stations suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements.

[72 FR 40722, July 25, 2007]

§ 90.1321 Power and antenna limits.

(a) Base and fixed stations are limited to 25 watts/25 MHz equivalent isotropically radiated power (EIRP). In any event, the peak EIRP power density shall not exceed 1 Watt in any one-megahertz slice of spectrum.

(b) In addition to the provisions in paragraph (a) of this section, transmitters operating in the 3650–3700 MHz band that emit multiple directional beams, simultaneously or sequentially, for the purpose of directing signals to individual receivers or to groups of receivers provided the emissions comply with the following:

(1) Different information must be transmitted to each receiver.

(2) If the transmitter employs an antenna system that emits multiple directional beams but does not emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device, *i.e.*, the sum of the power supplied to all antennas, antenna elements, staves, etc. and summed across all carriers or frequency channels, shall not exceed the limit specified in paragraph (a) of this section, as applicable. The directional antenna gain shall be computed as follows:

(i) The directional gain, in dBi, shall be calculated as the sum of 10 log (number of array elements or staves) plus the directional gain, in dBi, of the individual element or stave having the highest gain.

(ii) A lower value for the directional gain than that calculated in paragraph (b)(2)(i) of this section will be accepted if sufficient evidence is presented, *e.g.*, due to shading of the array or coherence loss in the beam-forming.

(3) If a transmitter employs an antenna that operates simultaneously on multiple directional beams using the same or different frequency channels and if transmitted beams overlap, the power shall be reduced to ensure that the aggregate power from the overlapping beams does not exceed the limit specified in paragraph (b)(2) of this section. In addition, the aggregate power transmitted simultaneously on all beams shall not exceed the limit specified in paragraph (b)(2) of this section by more than 8 dB.

(4) Transmitters that emit a single directional beam shall operate under the provisions of paragraph (b)(2) of this section.

(c) Mobile and portable stations are limited to 1 watt/25 MHz EIRP. In any event, the peak EIRP density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum.

§ 90.1323 Emission limits.

(a) The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based

on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

§ 90.1331 Restrictions on the operation of base and fixed stations.

(a)(1) Except as provided in paragraph (a)(2) of this section, base and fixed stations may not be located within 150 km of any grandfathered satellite earth station operating in the 3650–3700 MHz band. The coordinates of these stations are available at *http://www.fcc.gov/ib/sd/3650/*.

(2) Base and fixed stations may be located within 150 km of a grandfathered satellite earth station provided that the licensee of the satellite earth station and the 3650–3700 MHz licensee mutually agree on such operation.

(3) Any negotiations to enable base or fixed station operations closer than 150 km to grandfathered satellite earth stations must be conducted in good faith by all parties.

(b)(1) Except as specified in paragraph (b)(2) of this section, base and fixed stations may not be located within 80 km of the following Federal Government radiolocation facilities:

St. Inigoes, MD—38°10′ N., 76°23′ W.
Pensacola, FL—30°21′28″ N., 87°16′26″ W.

NOTE TO PARAGRAPH (b)(1): Licensees installing equipment in the 3650–3700 MHz band should determine if there are any nearby Federal Government radar systems that could affect their operations. Information regarding the location and operational characteristics of the radar systems operating adjacent to this band are provided in NTIA TR–99–361.

(2) Requests for base or fixed station locations closer than 80 km to the Federal Government radiolocation facilities listed in paragraph (b)(1) of this section will only be approved upon successful coordination by the Commission with NTIA through the Frequency Assignment Subcommittee of the Interdepartmental Radio Advisory Committee.

[70 FR 24726, May 11, 2005, as amended at 77 FR 76248, Dec. 27, 2012]

§ 90.1333 Restrictions on the operation of mobile and portable stations.

(a) Mobile and portable stations may operate only if they can positively receive and decode an enabling signal transmitted by a base station.

(b) Any mobile/portable stations may communicate with any other mobile/portable stations so long as each mobile/portable can positively receive and decode an enabling signal transmitted by a base station.

(c) Airborne operations by mobile/portable stations is prohibited.

§ 90.1335 RF safety.

Licensees in the 3650–3700 MHz band are subject to the exposure requirements found in § 1.1307(b), 2.1091 and 2.1093 of our Rules.

§ 90.1337 Operation near Canadian and Mexican borders.

(a) Fixed devices generally must be located at least 8 kilometers from the U.S./Canada or U.S./Mexico border if the antenna of that device looks within the 160° sector away from the border. Fixed devices must be located at least 56 kilometers from each border if the antenna looks within the 200° sector towards the border.

(b) Fixed devices may be located nearer to the U.S./Canada or U.S./Mexico border than specified in paragraph (a) of this section only if the Commission is able to coordinate such use with Canada or Mexico, as appropriate.

(c) Licensees must comply with the requirements of current and future agreements with Canada and Mexico regarding operation in U.S./Canada and U.S./Mexico border areas.

PART 94 [RESERVED]

PART 95—PERSONAL RADIO SERVICES

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AUTHORITY: Secs. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303.

EDITORIAL NOTE: Nomenclature changes to part 95 appear at 63 FR 54077, Oct. 8, 1998.

Subpart A—General Mobile Radio Service (GMRS)

SOURCE: 48 FR 35237, Aug. 3, 1983, unless otherwise noted.

§ 95.1 The General Mobile Radio Service (GMRS).

(a) The *GMRS* is a land mobile radio service available to persons for short-distance two-way communications to facilitate the activities of licensees and their immediate family members. Each licensee manages a system consisting of one or more stations.

(b) The 218–219 MHz Service is a two-way radio service authorized for system licensees to provide communication service to subscribers in a specific service area. The rules for this service are contained in subpart F of this part.

[48 FR 35237, Aug. 3, 1983, as amended at 50 FR 7345, Feb. 22, 1985; 53 FR 47714, Nov. 25, 1988; 57 FR 8275, Mar. 9, 1992; 62 FR 23163, Apr. 29, 1997; 64 FR 59659, Nov. 3, 1999]

§ 95.3 License required.

Before any station transmits on any channel authorized in the GMRS from any *point* (a geographical location) within or over the territorial limits of any area where radio services are regulated by the FCC, the responsible party

must obtain a *license* (a written authorization from the FCC for a GMRS system).

[53 FR 47714, Nov. 25, 1988]

§ 95.5 Licensee eligibility.

(a) An *individual* (one man or one woman) is eligible to obtain, renew, and have modified a GMRS system license if that individual is 18 years of age or older and is not a representative of a foreign government.

(b) A *non-individual* (an entity other than an individual) is ineligible to obtain a new GMRS system license or make a major modification to an existing GMRS system license (*see* § 1.929 of this chapter).

(c) A GMRS system licensed to a non-individual before July 31, 1987, is eligible to renew that license and all subsequent licenses based upon it if:

(1) The non-individual is a partnership and each partner is 18 years of age or older; a corporation; an association; a state, territorial, or local government unit; or a legal entity;

(2) The non-individual is not a foreign government; a representative of a foreign government; or a federal government agency; and

(3) The licensee has not been granted a major modification to its GMRS system.

[64 FR 53241, Oct. 1, 1999]

§ 95.7 Channel sharing.

(a) Channels or channel pairs (one 462 MHz frequency listed in § 95.29(a) of this part and one 467 MHz frequency listed in § 95.29(b) of this part) are available to GMRS systems only on a shared basis and will not be assigned for the exclusive use of any licensee. All station operators and GMRS system licensees must cooperate in the selection and use of channels to reduce interference and to make the most effective use of the facilities.

(b) Licensees of GMRS systems suffering or causing harmful interference are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the FCC may impose restrictions including specifying the transmitter power, antenna height, or area or hours of operation of the stations concerned. Further, the use of any frequency at a given geographical location may be denied when, in the judgment of the FCC, its use in that location is not in the public interest; the use of any channel or channel pair may be restricted as to specified geographical areas, maximum power, or other operating conditions.

[48 FR 35237, Aug. 3, 1983, as amended at 53 FR 47715, Nov. 25, 1988; 63 FR 68974, Dec. 14, 1998; 64 FR 53241, Oct. 1, 1999]

§ 95.21 GMRS system description.

A *GMRS system* is one or more transmitting units used by station operators to communicate messages. A GMRS system is comprised of:

(a) One or more station operators;

(b) One mobile station consisting of one or more mobile units (see § 95.23 of this part);

(c) One or more land stations (optional);

(d) Paging receivers (optional); and

(e) Fixed stations (optional).

[63 FR 68974, Dec. 14, 1998]

§ 95.23 Mobile station description.

(a) A *mobile station* is one or more units which transmit while moving or during temporary stops at unspecified points.

(b) A mobile station unit may transmit from any point within or over any areas where radio services are regulated by the FCC *except* where additional considerations apply.

(c) A mobile station unit may transmit from an aircraft or ship, with the captain's permission, which is:

(1) Within or over any area where radio services are regulated by the FCC *except* where additional restrictions apply; and

(2) On or over international waters, if the unit is transmitting from an aircraft or ship of United States registry.

[48 FR 35237, Aug. 3, 1983, as amended at 49 FR 4003, Feb. 1, 1984; 63 FR 68974, Dec. 14, 1998]

§ 95.25 Land station description.

(a) A *land station* is a unit which transmits from a specific address as determined by the licensee.

(1) An exact point as shown on the license; or

(2) An unspecified point within an *operating area* (an area within a circle centered on a point chosen by the applicant) as shown on the license, for a *temporary period* (one year or less).

(b) The point from which every land station transmits must be within an area where radio services are regulated by the FCC.

(c) [Reserved]

(d) A *small control station* is any control station which:

(1) Has an antenna no more than 6.1 meters (20 feet) above the ground or above the building or tree on which it is mounted (see § 95.51); and

(2) *Is:* (i) South of Line A or west of Line C; or

(ii) North of Line A or east of Line C, and the station transmits with no more than 5 watts *ERP* (effective radiated power).

(e) A *small base station* is any base station that:

(1) Has an antenna no more than 6.1 meters (20 feet) above the ground or above the building or tree on which it is mounted (see § 95.51); and

(2) Transmits with no more than 5 watts ERP.

(f) Each base station and each control station with an antenna height greater than 6.1 meters (20 feet) must be separately identified on Form 605. *See* §§ 95.25 (d) and (e) and 95.51 of this part.

[48 FR 35237, Aug. 3, 1983, as amended at 53 FR 47715, Nov. 25, 1988; 53 FR 51625, Dec. 22, 1988; 63 FR 68974, Dec. 14, 1998]

§ 95.27 Paging receiver description.

A *paging receiver* is a unit capable of receiving the radio signals from a base station for the bearer to hear a *page* (someone's name or other identifier said in order to find, summon or notify him/her) spoken by the base station operator.

§ 95.29 Channels available.

(a) For a base station, fixed station, mobile station, or repeater station (a GMRS station that simultaneously retransmits the transmission of another GMRS station on a different channel or channels), the licensee of the GMRS system must select the transmitting channels or channel pairs (*see* § 95.7(a) of this part) for the stations in the GMRS system from the following 462 MHz channels:

462.5500, 462.5750, 462.6000, 462.6250, 462.6500, 462.6750, 462.7000 and 462.7250.

(b) For a mobile station, control station, or fixed station operated in the duplex mode, the following 467 MHz channels may be used only to transmit communications through a repeater station and for remotely controlling a repeater station. The licensee of the GMRS system must select the transmitting channels or channel pairs (*see* § 95.7(a) of this part) for the stations operated in the duplex mode, from the following 467 MHz channels:

467.5500, 467.5750, 467.6000, 467.6250, 467.6500, 467.6750, 467.7000 and 467.7250.

(c)–(e) [Reserved]

(f) Except for a GMRS system licensed to a non-individual, a mobile station or a small base station operating in the simplex mode may transmit on the following 462 MHz interstitial channels:

462.5625, 462.5875, 462.6125, 462,6375, 462.6625, 462.6875 and 462.7125.

These channels may be used only under the following conditions:

(1) Only voice type emissions may be transmitted;

(2) The station does not transmit one-way pages; and

(3) The station transmits with no more than 5 watts ERP.

(g) Fixed stations in GMRS systems authorized before March 18, 1968, located 160 kilometers (100 miles) or more from the geographic center of urbanized areas f 200,000 or more population as defined in the U.S. Census of Population, 1960, Vol. 1, Table 23, page 50 that were authorized to transmit on channels other than those listed in this section may continue to transmit on their originally assigned channels provided that they cause no interference to the operation of stations in any of the part 90 private land mobile radio services.

[53 FR 47715, Nov. 25, 1988, as amended at 63 FR 68974, Dec. 14, 1998; 64 FR 53241, Oct. 1, 1999]

§ 95.33 Cooperative use of radio stations in the GMRS.

(a) *Licensees* (a licensee is the entity to which the license is issued) of radio stations in the GMRS may share the use of their stations with other entities eligible in the GMRS, subject to the following conditions and limitations.

(1) The station to be shared must be individually owned by the licensee, jointly owned by the participants and the licensee, leased individually by the licensee, or leased jointly by the participants and the licensee.

(2) The licensee must maintain access to and control over all stations authorized under its license.

(3) A station may be shared only:

(i) Without charge;

(ii) On a non-profit basis, with contributions to capital and operating expenses including the cost of mobile stations and paging receivers prorated equitably among all participants; or

(iii) On a reciprocal basis, i.e., use of one licensee's stations for the use of another licensee's stations without charge for either capital or operating expenses.

(4) All sharing arrangements must be conducted in accordance with a written agreement to be kept as part of the station records.

(b) [Reserved]

[48 FR 35237, Aug. 3, 1983, as amended at 63 FR 68975, Dec. 14, 1998]

§ 95.45 Considerations on Department of Defense land and in other circumstances.

(a) The Department of Defense may impose additional restrictions on a station transmitting on its land. (Before placing a station at such a point, a licensee should consult with the commanding officer in charge of the land.)

(b) Additional restrictions may apply when a land station in a GMRS system is located near FCC field offices, near United States borders, in quiet zones, or when it may have a significant impact upon the environment. *See* §§ 1.923 and 1.924 of this chapter.

[63 FR 68975, Dec. 14, 1998]

§ 95.51 Antenna height.

(a) Certain antenna structures used in a GMRS system and that are more than 60.96 m (200 ft) in height, or are located near or at a public-use airport must be notified to the FAA and registered with the Commission as required by part 17 of this chapter.

(b) The antenna for a small base station or for a small control station must not be more than 6.1 meters (20 feet) above the ground or above the building or tree on which it is mounted.

[63 FR 68975, Dec. 14, 1998]

§ 95.101 What the license authorizes.

(a) A GMRS license authorizes a GMRS station to transmit messages to other GMRS stations at any geographical location within or over the territorial limits of any area where radio services are regulated by the FCC. These points are listed in Appendix A.

(b) The license does not authorize operation as a common carrier or communication of messages for pay.

(c) If the licensee is a corporation and the license so indicates, it may use its GMRS system to furnish non-profit radio communication service to its parent corporation, to another subsidiary of the same parent, or to its own subsidiary. Such use is not subject to the cooperative use provisions of § 95.33.

(d) For non-individual licensees, the license together with the system specifications for that license as maintained by the Commission represent the non-individual licensees' maximum authorized system.

[48 FR 35237, Aug. 3, 1983, as amended at 63 FR 68975, Dec. 14, 1998; 64 FR 53242, Oct. 1, 1999]

§ 95.103 Licensee duties.

The licensee is responsible for the proper operation of the GMRS system at all times. The licensee is also responsible for the appointment of a station operator.

[63 FR 68975, Dec. 14, 1998]

EDITORIAL NOTE: At 64 FR 53242, Oct. 1, 1999, § 95.103 was amended by revising paragraphs (a) and (b), effective Nov. 30, 1999. However, § 95.103, as revised at 63 FR 68975, Dec. 14, 1998, effective Feb. 12, 1999, does not contain paragraphs (a) and (b), and the revisions could not be made. For the convenience

of the user, the revised text is set forth as follows:

§ 95.103 Licensee duties.

(a) The licensee is responsible for the proper operation of the GMRS system at all times. The licensee is also responsible for the appointment of a station operator.

(b) The licensee may limit the use of repeater to only certain user stations.

* * * * *

§ 95.105 License term.

A license for a GMRS system is usually issued for a 5-year term.

[63 FR 68975, Dec. 14, 1998]

§ 95.115 Station inspection.

If an authorized FCC representative requests to inspect any station in a GMRS system, the licensee or station operator must make the station available. If an authorized FCC representative requests to inspect the GMRS system records, the licensee must make them available.

[48 FR 35237, Aug. 3, 1983, as amended at 63 FR 68975, Dec. 14, 1998]

§ 95.117 Where to contact the FCC.

Additional GMRS information may be obtained from any of the following sources:

(a) FCC National Call Center at 1–888–225–5322.

(b) FCC World Wide Web homepage: *http://www.fcc.gov/wtb/prs*.

(c) In writing, to the FCC, Attention: GMRS, 1270 Fairfield Road, Gettysburg, PA 17325–7245.

[63 FR 68975, Dec. 14, 1998]

§ 95.119 Station identification.

(a) Except as provided in paragraph (e), every GMRS station must transmit a station identification:

(1) Following the transmission of communications or a series of communications; and

(2) Every 15 minutes during a long transmission.

(b) The station identification is the call sign assigned to the GMRS station or system.

(c) A unit number may be included after the call sign in the identification.

(d) The station identification must be transmitted in:

(1) Voice in the English language; or

(2) International Morse code telegraphy.

(e) A station need not identify its transmissions if it automatically retransmits communications from another station which are properly identified.

[48 FR 35237, Aug. 3, 1983, as amended at 63 FR 68975, Dec. 14, 1998]

§ 95.129 Station equipment.

Every station in a GMRS system must use transmitters the FCC has certificated for use in the GMRS. Write to any FCC Field Office to find out if a particular transmitter has been certificated for the GMRS. All station equipment in a GMRS system must comply with the technical rules in part 95.

[63 FR 68975, Dec. 14, 1998]

§ 95.135 Maximum authorized transmitting power.

(a) No station may transmit with more than 50 watts output power.

(b) [Reserved]

(c) A small control station at a point north of Line A or east of Line C must transmit with no more than 5 watts ERP.

(d) A fixed station must transmit with no more than 15 watts output power.

(e) A small base station must transmit with no more than 5 watts ERP.

[48 FR 35237, Aug. 3, 1983, as amended at 53 FR 47717, Nov. 25, 1988; 63 FR 68975, Dec. 14, 1998]

§ 95.139 Adding a small base station or a small control station.

(a) Except for a GMRS system licensed to a non-individual, one or more small base stations or a small control station may be added to a GMRS system at any point where radio services are regulated by the FCC.

(b) Non-individual licensees may not add any small base station or small control stations to their GMRS systems.

[53 FR 47717, Nov. 25, 1988, as amended at 63 FR 68976, Dec. 14, 1998]

§ 95.141 Interconnection prohibited.

No station in a GMRS system may be interconnected to the public switched

telephone network except as and in accordance with the requirements and restrictions applied to a wireline control link (see § 95.127).

[53 FR 47717, Nov. 25, 1988]

§ 95.143 Managing a GMRS system in an emergency.

(a) The stations in a GMRS system must cease transmitting when the station operator of any station on the same channel is communicating an *emergency message* (concerning the immediate protection of property or the safety of someone's life).

(b) If necessary to communicate an emergency message from a station in a GMRS system, the licensee may permit:

(1) Anyone to be the station operator (see § 95.179); and

(2) The station operator to communicate the emergency message to any radio station.

§ 95.171 Station operator duties.

When a GMRS station is transmitting, it must have a station operator. The station operator must be at the control point for that station. The same person may be the operator for more than one station at the same time. The station operator communicates messages and controls the station. The station operator must also cooperate in *sharing* each channel with station operators of other stations.

[63 FR 68976, Dec. 14, 1998]

§ 95.179 Individuals who may be station operators.

(a) An individual GMRS system licensee may permit immediate family members to be station operators in his or her GMRS system. Immediate family members are the:

(1) Licensee;

(2) Licensee's spouse;

(3) Licensee's children, grandchildren, stepchildren;

(4) Licensee's parents, grandparents, stepparents;

(5) Licensee's brothers, sisters;

(6) Licensee's aunts, uncles, nieces, nephews; and

(7) Licensee's in-laws.

(b) Only the following persons may be permitted to operate under the authority of a GMRS system licensed to a non-individual:

(1) If the GMRS system licensee is:	These persons may be station operators:
(i) A partnership	Licensee's partners and employees.
(ii) A corporation	Licensee's officers, directors, members and employees.
(iii) An association	Licensee's members and employees.
(iv) A governmental unit	Licensee's employees.

(2) These persons may only communicate messages about the licensee's business activities. Employees of the licensee may communicate messages while acting within the scope of their employment, and only about the licensee's business activities.

(c) The licensee may permit a telephone answering service employee to be a station operator if:

(1) That employee only communicates messages received for the licensee to the licensee;

(2) The station equipment at the telephone answering point is not shared in any other GMRS system; and

(3) The station at the telephone answering service point is not interconnected to the public switched telephone network.

(d) The station operator of a GMRS system licensed to an individual may be a station operator in any other GMRS system if he/she has permission from the licensee of the other GMRS system.

(e) The provisions of § 95.33 regarding cooperative use do not apply to or govern the authority of a GMRS licensee to designate station operators in accordance with the provisions of this section.

[48 FR 35237, Aug. 3, 1983, as amended at 53 FR 47717, Nov. 25, 1988; 53 FR 51625, Dec. 22, 1988; 63 FR 68976, Dec. 14, 1998]

§ 95.181 Permissible communications.

(a) A station operator for an individual who is licensed in the GMRS (other than an employee of that individual) may communicate two-way voice messages concerning the licensee's personal or business activities (see § 95.179).

(b) [Reserved]

(c) A station operator for any entity other than an individual licensed in the GMRS may communicate two-way

voice messages concerning the licensee's business activities (see § 95.179). An employee for an entity other than an individual licensed in the GMRS may, as a station operator, communicate two-way voice messages while acting within the scope of his/her employment.

(d) A station operator for any GMRS licensee may communicate two-way voice messages concerning:

(1) Emergencies (see § 95.143);

(2) Rendering assistance to a motorist; and

(3) Civil defense drills, if the responsible agency requests assistance.

(e) All messages must be in *plain language* (without codes or hidden meanings). They may be in a foreign language, except for call signs (see § 95.119).

(f) A station operator may communicate tone messages for purposes of identification or transmitter control in a control link.

(g) A station operator may communicate a selective calling tone or tone operated squelch only in conjunction with a voice communication. If the tone is *subaudible* (300 Hertz or less) it may be communicated during the entire voice message. If the tone is *audible* (more than 300 Hertz) it may be communicated for no more than 15 seconds at a time.

(h) A station operator may communicate a one-way voice page to a paging receiver. A selective calling tone or tone operated squelch may be used in conjunction with a voice page, as prescribed in paragraph (g) of this section. A station operator may not communicate a *tone-only page* (tones communicated in order to find, summon or notify someone).

[48 FR 35237, Aug. 3, 1983, as amended at 49 FR 4003, Feb. 1, 1984; 56 FR 13289, Apr. 1, 1991; 63 FR 68976, Dec. 14, 1998]

§ 95.183 Prohibited communications.

(a) A station operator must not communicate:

(1) Messages for hire, whether the remuneration received is direct or indirect;

(2) Messages in connection with any activity which is against Federal, State, or local law;

(3) False or deceptive messages;

(4) Coded messages or messages with hidden meanings (''10 codes'' are permissible);

(5) Intentional interference;

(6) Music, whistling, sound effects or material to amuse or entertain;

(7) Obscene, profane or indecent words, language or meaning;

(8) Advertisements or offers for the sale of goods or services;

(9) Advertisements for a political candidate or political campaign (messages about the campaign business may be communicated);

(10) International distress signals, such as the word ''Mayday'' (except when on a ship, aircraft or other vehicle in immediate danger to ask for help);

(11) Programs (live or delayed) intended for radio or television station broadcast;

(12) Messages which are both conveyed by a wireline control link and transmitted by a GMRS station;

(13) Messages (except emergency messages) to any station in the Amateur Radio Service, to any unauthorized station, or to any foreign station;

(14) Continuous or uninterrupted transmissions, except for communications involving the immediate safety of life or property;

(15) Messages for public address systems.

(b) A station operator in a GMRS system licensed to a telephone answering service must not transmit any communications to customers of the telephone answering service.

[63 FR 68976, Dec. 14, 1998]

APPENDIX A TO SUBPART A OF PART 95—LOCATIONS WHERE GMRS IS REGULATED BY THE FCC

In ITU Region 2, the GMRS is regulated by the Commission within the territorial limits of the 50 United States, District of Columbia, Caribbean Insular areas (Commonwealth of Puerto Rico, United States Virgin Islands (50 islets and cays) and Navassa Island), and Johnston Island (Islets East, Johnston, North and Sand) and Midway Island (Islets Eastern and Sand) in the Pacific Insular areas.

In ITU Region 3, the GMRS is regulated by the Commission within the Pacific Insular territorial limits of American Samoa (seven islands), Baker Island, Commonwealth of Northern Mariana Islands, Guam Island,

Howland Island, Jarvis Island, Kingman Reef, Palmyra Island (more than 50 islets), and Wake Island (Islets Peale, Wake and Wilkes).

[63 FR 68976, Dec. 14, 1998]

Subpart B—Family Radio Service (FRS)

SOURCE: 61 FR 28768, June 6, 1996, unless otherwise noted.

GENERAL PROVISIONS

§ 95.191 (FRS Rule 1) Eligibility and responsibility.

(a) Unless you are a representative of a foreign government, you are authorized by this rule to operate an FCC certified FRS unit in accordance with the rules in this subpart. No license will be issued.

(b) You are responsible for all communications that you make with the FRS unit. You must share each channel with other users. No channel is available for the private or exclusive use of any user.

§ 95.192 (FRS Rule 2) Authorized locations.

(a) Provided that you comply with these rules, you are authorized to operate an FRS unit:

(1) Within or over any area of the world where radio services are regulated by the FCC (this area includes the fifty United States and the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands (50 islets and cays), American Samoa (seven islands), the Commonwealth of Northern Marianna Islands, and Guam Island);

(2) Within or over any other area of the world, except within or over the territorial limits of areas where radio services are regulated by an agency of the United States other than the FCC or any foreign government (you are subject to its rules);

(3) Aboard any vessel or aircraft registered in the United States, with the permission of the captain, that is within or over any area of the world where radio services are regulated by the FCC or upon or over international waters;

(4) or; Aboard any unregistered vessel or aircraft owned or operated by a United States citizen or company that is within or over any area of the world where radio services are regulated by the FCC or upon or over international waters.

(5) You must operate the FRS unit only according to any applicable treaty to which the United States is a party. The FCC will make public notice of any such conditions.

(b)–(c) [Reserved]

(d) Anyone intending to operate an FRS unit on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra in a manner that could pose an interference threat to the Arecibo Observatory, shall notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the location of the unit. Operators may wish to consult interference guidelines, which will be provided by Cornell University. Operators who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory shall be made 45 days prior to commencing operation of the unit. The notification shall state the geographical coordinates of the unit.

(2) After receipt of such notifications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections. The operator will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory. If the Commission determines that an operator has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, the unit may be allowed to operate.

[61 FR 28768, June 6, 1996, as amended at 62 FR 55535, Oct. 27, 1997; 63 FR 68976, Dec. 14, 1998; 70 FR 31374, June 1, 2005]

§ 95.193 (FRS Rule 3) Types of communications.

(a) You may use an FRS unit to conduct two-way voice communications with another person. You may use an FRS unit to transmit one-way voice or non-voice communications only to establish communications with another person, send an emergency message,

provide traveler assistance, provide location information, transmit a brief text message, make a voice page, or to conduct a brief test.

(b) *Non-voice communications.* (1) The FRS unit may transmit tones to make contact or to continue communications with a particular FRS unit. If the tone is audible (more than 300 Hertz), it must be transmitted continuously no longer than 15 seconds at one time. If the tone is subaudible (300 Hertz or less), it may be transmitted continuously only while you are talking.

(2) The FRS unit may transmit digital data containing location information, or requesting location information from one or more other FRS units, or containing a brief text message to another specific FRS unit. Digital data transmissions must be initiated by a manual action or command of a user, except that an FRS unit receiving an interrogation request may automatically respond with its location. Digital data transmissions shall not exceed one second, and shall be limited to no more than one digital transmission within a thirty-second period, except that an FRS unit may automatically respond to more than one interrogation request received within a thirty-second period.

(c) You must not use an FRS unit in connection with any activity which is against federal, state or local law.

(d) You must, at all times and on all channels, give priority to emergency communication messages concerning the immediate safety of life or the immediate protection of property.

(e) No FRS unit may be interconnected to the public switched network.

[61 FR 28768, June 6, 1996, as amended at 68 FR 9901, Mar. 3, 2003]

§ 95.194 (FRS Rule 4) FRS units.

(a) You may only use an FCC certified FRS unit. (You can identify an FCC certified FRS unit by the label placed on it by the manufacturer.)

(b) You must not make, or have made, any internal modification to an FRS unit. Any internal modification cancels the FCC certification and voids your authority to operate the unit in the FRS.

(c) You may not attach any antenna, power amplifier, or other apparatus to an FRS unit that has not been FCC certified as part of that FRS unit. There are no exceptions to this rule and attaching any such apparatus to a FRS unit cancels the FCC certification and voids everyone's authority to operate the unit in the FRS.

(d) FRS units are prohibited from transmitting data in store-and-forward packet operation mode.

[61 FR 28768, June 6, 1996, as amended at 68 FR 9901, Mar. 3, 2003]

Subpart C—Radio Control (R/C) Radio Service

SOURCE: 48 FR 24890, June 3, 1983, unless otherwise noted.

GENERAL PROVISIONS

§ 95.201 (R/C Rule 1) What is the Radio Control (R/C) Radio Service?

The R/C Service is a private, one-way, short distance non-voice communications service for the operation of devices at remote locations.

§ 95.202 (R/C Rule 2) How do I use these rules?

(a) You must comply with rules (see R/C Rule 18, § 95.218, for the penalties for violations) when you operate a station in the R/C service from:

(1) Within or over the territorial limits of places where radio services are regulated by the FCC (see R/C Rule 5, § 95.205);

(2) Aboard any vessel or aircraft registered in the United States; or

(3) Aboard any unregistered vessel or aircraft owned or operated by a United States citizen or company.

(b) Your R/C station must comply with technical rules found in subpart E of part 95.

(c) Where the rules use the word ''you'', ''you'' means a person operating an R/C station.

(d) Where the rules use the word ''person,'' the rules are concerned with an individual, a corporation, a partnership, an association, a joint stock company, a trust, a state, territorial or local government unit, or other legal entity.

(e) Where the rules use the term ''FCC,'' that means the Federal Communications Commission.

(f) Where the rules use the term ''R/C station,'' that means a radio station transmitting in the R/C Radio Service.

§ 95.203 (R/C Rule 3) Am I eligible to operate an R/C station?

You are authorized to operate an R/C station unless:

(a) You are a foreign government, a representative of a foreign government, or a federal government agency; or

(b) The FCC has issued a cease and desist order to you, and the order is still in effect.

§ 95.204 (R/C Rule 4) Do I need a license?

You do not need an individual license to operate an R/C station. You are authorized by this rule to operate your R/C station in accordance with the rules in this subpart.

§ 95.205 (R/C Rule 5) Where may I operate my R/C station?

You are authorized to operate your R/C station from:

(a) Within or over any area of the world where radio services are regulated by the FCC. Those areas are within the territorial limits of:

(1) The fifty United States

(2) The District of Columbia

Caribbean Insular areas

(3) Commonwealth of Puerto Rico

(4) Navassa Island

(5) United States Virgin Islands (50 islets and cays)

Pacific Insular areas

(6) American Samoa (seven islands)

(7) Baker Island

(8) Commonwealth of Northern Mariana Islands

(9) Guam Island

(10) Howland Island

(11) Jarvis Island

(12) Johnston Island (Islets East, Johnston, North and Sand)

(13) Kingman Reef

(14) Midway Island (Islets Eastern and Sand)

(15) Palmyra Island (more than 50 islets)

(16) Wake Island (Islets Peale, Wake and Wilkes)

(b) Any other area of the world, except within the territorial limits of areas where radio services are regulated by—

(1) An agency of the United States other than the FCC. (You are subject to its rules.)

(2) Any foreign government. (You are subject to its rules.)

(c) An aircraft or ship, with the permission of the captain, within or over any area of the world where radio services are regulated by the FCC or upon or over international waters. You must operate your R/C station according to any applicable treaty to which the United States is a party.

§ 95.206 (R/C Rule 6) Are there any special restrictions on the location of my R/C station?

(a) If your R/C station is located on premises controlled by the Department of Defense, you may be required to comply with additional regulations imposed by the commanding officer of the installation.

(b) If your R/C station will be constructed on an environmental sensitive site, or will be operated in such a manner as to raise environmental problems, under § 1.1307 of this chapter, you must provide an environmental assessment, as set forth in § 1.1311 of this chapter, and undergo environmental review § 1.1312 of this chapter, before commencement of construction.

(c) Anyone intending to operate an R/C station on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra in a manner that could pose an interference threat to the Arecibo Observatory shall notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the location of the unit. Operators may wish to consult interference guidelines, which will be provided by Cornell University. Operators who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory

shall be made 45 days prior to commencing operation of the unit. The notification shall state the geographical coordinates of the unit.

(2) After receipt of such notifications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections. The operator will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory. If the Commission determines that an operator has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, the unit may be allowed to operate.

[48 FR 24890, June 3, 1983, as amended at 55 FR 20398, May 16, 1990; 62 FR 55535, Oct. 27, 1997; 70 FR 31374, June 1, 2005]

HOW TO OPERATE AN R/C STATION

§ 95.207 (R/C Rule 7) On what channels may I operate?

(a) Your R/C station may transmit only on the following channels (frequencies):

(1) The following channels may be used to operate any kind of device (any object or apparatus, except an R/C transmitter), including a model aircraft device (any small imitation of an aircraft) or a model surface craft device (any small imitation of a boat, car or vehicle for carrying people or objects, except aircraft): 26.995, 27.045, 27.095, 27.145, 27.195 and 27.255 MHz.

(2) The following channels may only be used to operate a model aircraft device:

MHz	
72.01	72.35
72.03	72.37
72.05	72.39
72.07	72.41
72.09	72.43
72.11	72.45
72.13	72.47
72.15	72.49
72.17	72.51
72.19	72.53
72.21	72.55
72.23	72.57
72.25	72.59
72.27	72.61
72.29	72.63
72.31	72.65
72.33	72.67
72.69	72.85
72.71	72.87
72.73	72.89
72.75	72.91
72.77	72.93
72.79	72.95
72.81	72.97
72.83	72.99

(3) The following channels may only be used to operate a model surface craft devices:

MHz	
75.41	75.71
75.43	75.73
75.45	75.75
75.47	75.77
75.49	75.79
75.51	75.81
75.53	75.83
75.55	75.85
75.57	75.87
75.59	75.89
75.61	75.91
75.63	75.93
75.65	75.95
75.67	75.97
75.69	75.99

(b) You must share the channels with other R/C stations. You must cooperate in the selection and use of the channels. You must share the Channel 27.255 MHz with stations in other radio services. There is no protection from interference on any of these channels.

(c) Your R/C station may not transmit simultaneously on more than one channel in the 72–76 MHz band when your operation would cause harmful interference to the operation of other R/C stations.

(d) Your R/C station must stop transmitting if it interferes with:

(1) Authorized radio operations in the 72–76 MHz band; or

(2) Television reception on TV Channels 4 or 5.

(e) [Reserved]

(f) Stations in the 26–27 MHz range are not afforded any protection from interference caused by the operation of industrial, scientific of medical devices. Such stations also operate on a shared basis with other stations in the Personal Radio Services.

(g) Stations in the 72–76 MHz range are subject to the condition that inteference will not be caused to the remote control of industrial equipment

operating on the same or adjacent frequencies or to the reception of television transmissions on Channels 4 and 5. These frequencies are not afforded any protection from interference due to the operation of fixed and mobile stations in other services assigned to the same or adjacent frequencies.

[48 FR 24890, June 3, 1983. Redesignated at 49 FR 6098, Feb. 17, 1984, and amended at 50 FR 37857, Sept. 18, 1985; 52 FR 16263, May 4, 1987; 57 FR 40343, Sept. 3, 1992]

§ 95.208 (R/C Rule 8) How high may I put my antenna?

(a) *Antenna* means the radiating system (for transmitting, receiving or both) and the structure holding it up (tower, pole or mast). It also means everything else attached to the radiating system and the structure.

(b) If your antenna is mounted on a hand-held portable unit, none of the following limitations apply.

(c) If your antenna is installed at a fixed location, it (whether receiving, transmitting or both) must comply with either one of the following:

(1) The highest point must not be more than 6.10 meters (20 feet) higher than the highest point of the building or tree on which it is mounted; or

(2) The highest point must not be more than 18.3 meters (60 feet) above the ground.

(d) If your R/C station is located near an airport, and if you antenna structure is more than 6.1 meters (20 feet) high, your may have to obey additional restrictions. The highest point of your antenna must not exceed one meter above the airport elevation for every hundred meters of distance from the nearest point of the nearest airport runway. Differences in ground elevation between your antenna and the airport runway may complicate this formula. If your R/C station is near an airport, you may contact the nearest FCC field office for a worksheet to help you figure the maximum allowable height of your antenna. Consult part 17 of the FCC's Rules for more information.

WARNING: Installation and removal of R/C station antennas near powerlines is dangerous. For your safety, follow the installation directions included with your antenna.

[48 FR 24890, June 3, 1983, as amended at 48 FR 41416, Sept. 15, 1983]

§ 95.209 (R/C Rule 9) What equipment may I use at my R/C station?

(a) Your R/C station may transmit only with:

(1) An FCC certificated R/C transmitter (certificated means the FCC has determined that certain radio equipment is capable of meeting recommended standards for operation); or

(2) A non-certificated R/C transmitter on Channels 26.995–27.255 MHz if it complies with the technical standards (see part 95, subpart E).

(3) Use of a transmitter outside of the band 26.955–27.255 MHz which is not certificated voids your authority to operate the station. Use of a transmitter in the band 26.995–27.255 MHz which does not comply with the technical standards voids your authority to operate the station.

(b) You may examine a list of certificated transmitters at any FCC field office.

(c) Your R/C station may transmit with a transmitter assembled from a kit.

(d) You must not make, or have made, any internal modification to a certificated transmitter. (See R/C Rule 22.) Any internal modification to a certificated transmitter cancels the certification, and use of such a transmitter voids your authority to operate the station.

[63 FR 36610, July 7, 1998]

§ 95.210 (R/C Rule 10) How much power may I use?

(a) Your R/C station transmitter power output must not exceed the following value under any conditions:

Channel	Transmitter power (carrier power) (watts)
27.255 MHz	25
26.995–27.195 MHz	4
72–76 MHz	0.75

(b) Use of a transmitter which has power output in excess of that authorized voids your authority to operate the station.

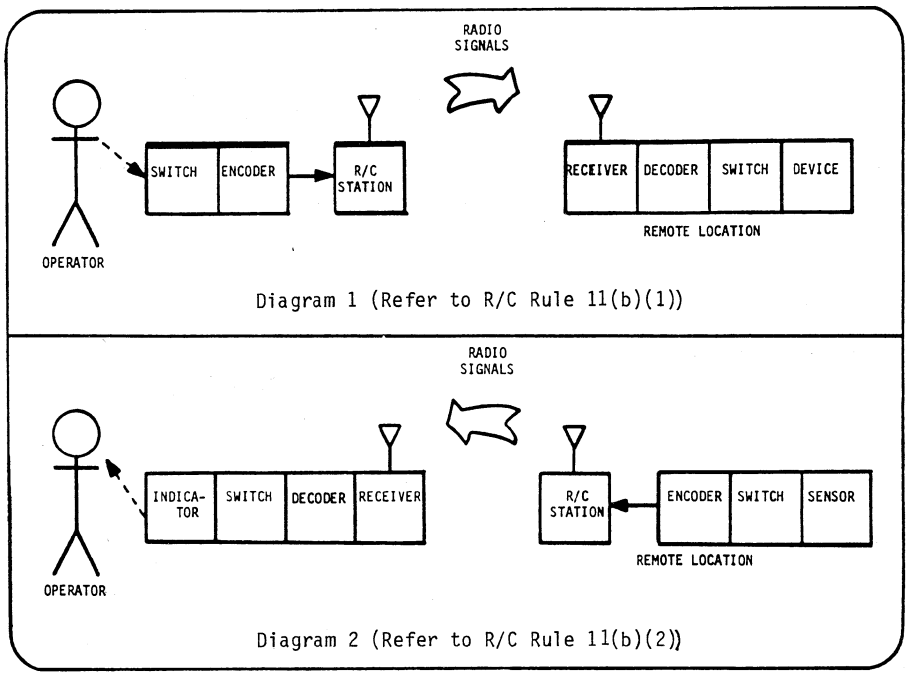
§ 95.211 (R/C Rule 11) What communications may be transmitted?

(a) You may only use your R/C station to transmit one-way communications. (One-way communications are transmissions which are not intended to establish communications with another station.)

(b) You may only use your R/C station for the following purposes:

(1) The operator turns on and/or off a device at a remote location (Refer to Diagram 1); or

(2) A sensor at a remote location turns on and/off an indicating device for the operator. (Refer to Diagram 2). Only Channels 26.995 to 27.255 MHz (see R/C Rule 7, § 95.207(a)(1)) may be used for this purpose. (A remote location means a place distant from the operator.)



(c) Your R/C station may transmit any appropriate non-voice emission.

[48 FR 24890, June 3, 1983, as amended at 50 FR 37857, Sept. 18, 1985; 57 FR 40343, Sept. 3, 1992]

§ 95.212 (R/C Rule 12) What communications are prohibited?

You must not use an R/C station—

(a) In connection with any activity which is against federal, state or local law;

(b) To transmit any message other than for operation of devices at remote locations (no voice, telegraphy, etc.);

(c) To intentionally interfere with another station's transmissions;

(d) To operate another R/C transmitter by remote control (See R/C Rule 17, § 95.217); or

(e) To transmit two-way communications.

(f) To transmit data. Tone or other signal encoding, however, is not considered to be data when only used either

for the purpose of identifying the specific device among multiple devices that the operator intends to turn on/off, or the specific sensor among multiple sensors intended to turn on/off indicating device for the operator.

[48 FR 24890, June 3, 1983, as amended at 54 FR 8336, Feb. 28, 1989; 54 FR 20476, May 11, 1989]

§ 95.213 (R/C Rule 13) May I be paid to use my R/C station?

(a) You may not accept direct or indirect payment for transmitting with an R/C station.

(b) You may use an R/C station to help you provide a service, and be paid for that service, as long as you are paid only for the service and not for the actual use of the R/C station.

§ 95.214 (R/C Rule 14) Who is responsible for R/C communications I make?

You are responsible for all communications which are made by you from an R/C station.

§ 95.215 (R/C Rule 15) Do I have to limit the length of my communications?

(a) You must limit your R/C communications to the minimum practical time.

(b) The only time your R/C communications may be a continuous signal for more than 3 minutes is when operation of the device requires at least one or more changes during each minute of the communications.

(c) Your R/C station may transmit a continuous signal without modulation only if:

(1) You are using it to operate a model aircraft device; and

(2) The presence or absence of the signal operates the device.

(d) If you show that you need a continuous signal to insure the immediate safety of life of property, the FCC may make an exception to the limitations in this rule.

§ 95.216 (R/C Rule 16) Do I identify my R/C communications?

You need not identify your R/C communications.

§ 95.217 (R/C Rule 17) May I operate my R/C station transmitter by remote control?

(a) You may not operate an R/C transmitter by radio remote control. (See R/C Rule 12, § 95.212.)

(b) You may operate an R/C transmitter by wireline remote control if you obtain specific approval in writing from the FCC. To obtain FCC approval, you must show why you need to operate your station by wireline remote control. If you receive FCC approval, you must keep the approval as part of your station records. *See* R/C Rule 24, § 95.224.

(c) Remote control means operation of an R/C transmitter from any place other than the location of the R/C transmitter. Direct mechanical control or direct electrical control by wire from some point on the same premises, craft or vehicles as the R/C transmitter is not considered remote control.

[48 FR 24890, June 3, 1983, as amended at 63 FR 68976, Dec. 14, 1998]

OTHER THINGS YOU NEED TO KNOW

§ 95.218 (R/C Rule 18) What are the penalties for violating these rules?

(a) If the FCC finds that you have willfully or repeatedly violated the Communications Act or the FCC Rules, you may have to pay as much as $10,000 for each violation, up to a total of $75,000. (See Section 503(b) of the Communications Act.)

(b) If the FCC finds that you have violated any section of the Communications Act or the FCC Rules, you may be ordered to stop whatever action caused the violation. (See section 312(b) of the Communications Act.)

(c) If a federal court finds that you have willfully and knowingly violated any FCC Rule, you may be fined up to $500 for each day you committed the violation. (See section 502 of the Communications Act.)

(d) If a Federal court finds that you have willfully and knowingly violated any provision of the Communications Act, you may be fined up to $10,000, or you may be imprisoned for one year, or both. (See section 501 of the Communications Act.)

[48 FR 24890, June 3, 1983, as amended at 57 FR 40343, Sept. 3, 1992]

§ 95.219 (R/C Rule 19) How do I answer correspondence from the FCC?

(a) If it appears to the FCC that you have violated the Communications Act or FCC rules, the FCC may send you a discrepancy notice.

(b) Within the time period stated in the notice, you must answer with:

(1) A complete written statement about the apparent discrepancy;

(2) A complete written statement about any action you have taken to correct the apparent violation and to prevent it from happening again; and

(3) The name of the person operating at the time of the apparent violation.

(c) If the FCC send you a letter asking you questions about your R/C radio station or its operation, you must answer each of the questions with a complete written statement within the time period stated in the letter.

(d) You must not shorten your answer by references to other communications or notices.

(e) You must send your answer to the FCC office which sent you the notice.

(f) You must keep a copy of your answer in your station records (see R/C Rule 24, § 95.224).

§ 95.220 (R/C Rules 20) What must I do if the FCC tells me that my R/C station is causing interference?

(a) If the FCC tells you that your R/C station is causing interference for technical reasons, you must follow all instructions in the official FCC notice. (This notice may require you to have technical adjustments made to your equipment.)

(b) You must comply with any restricted hours of R/C station operation which may be included in the official FCC notice.

§ 95.221 (R/C Rule 21) How do I have my R/C transmitter serviced?

(a) You may adjust an antenna to your R/C transmitter and you may make radio checks. (A radio check means a one-way transmission for a short time in order to test the transmitter.)

(b) You are responsible for the proper operation of the station at all times and are expected to provide for observations, servicing and maintenance as often as may be necessary to ensure proper operation. Each internal repair and each internal adjustment to an FCC certificated R/C transmitter (see R/C Rule 9) must be made in accord with the Technical Regulations (see subpart E). The internal repairs or internal adjustments should be performed by or under the immediate supervision and responsibility of a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by an organization or committee representative of users in those services.

(c) Except as provided in paragraph (d) of this section, each internal repair and each internal adjustment of an R/C transmitter in which signals are transmitted must be made using a nonradiating (''dummy'') antenna.

(d) Brief test signals (signals not longer than one minute during any five minute period) using a radiating antenna may be transmitted in order to:

(1) Adjust a transmitter to an antenna;

(2) Detect or measure radiation of energy other than the intended signal; or

(3) Tune a receiver to your R/C transmitter.

(Secs. 4(i) and 303(r), Communications Act of 1934, as amended, 47 U.S.C. 154(i) and 303(r), and sec. 553 of the Administrative Procedures Act, 5 U.S.C. 553)

[48 FR 24890, June 3, 1983, as amended at 49 FR 20673, May 16, 1984; 63 FR 36610, July 7, 1998]

§ 95.222 (R/C Rule 22) May I make any changes to my R/C station transmitter?

(a) You must not make or have anyone else make an internal modification to your R/C transmitter.

(b) Internal modification does not include:

(1) Repair or servicing of an R/C station transmitter (see R/C Rule 21, § 95.221); or

(2) Changing plug-in modules which were certificated as part of your R/C transmitter.

(c) You must not operate an R/C transmitter which has been modified

by anyone in any way, including modification to operate on unauthorized frequencies or with illegal power. (See R/C Rules 9 and 10, §§ 95.209 and 95.210.)

[48 FR 24894, June 3, 1983, as amended at 63 FR 36610, July 7, 1998]

§ 95.223 (R/C Rule 23) Do I have to make my R/C station available for inspection?

(a) If an authorized FCC representative requests to inspect your R/C station, you must make your R/C station and records available for inspection.

(b) An R/C station includes all of the radio equipment you use.

§ 95.224 (R/C Rule 24) What are my station records?

Your station records include the following documents, as applicable:

(a) A copy of each response to an FCC violation notice or an FCC letter. (See R/C Rule 19, § 95.219.)

(b) Each written permission received from the FCC. (See R/C Rule 17.)

§ 95.225 (R/C Rule 25) How do I contact the FCC?

(a) FCC National Call Center at 1–888–225–5322.

(b) FCC World Wide Web homepage: *http://www.fcc.gov*.

(c) In writing, to FCC, Attention: R/C, 1270 Fairfield Road, Gettysburg, PA 17325–7245.

[63 FR 68976, Dec. 14, 1998]

Subpart D—Citizens Band (CB) Radio Service

SOURCE: 48 FR 24894, June 3, 1983, unless otherwise noted.

GENERAL PROVISIONS

§ 95.401 (CB Rule 1) What are the Citizens Band Radio Services?

The Citizens Band Radio Services are:

(a) The Citizens Band (CB) Radio Service—a private, two-way, short-distance voice communications service for personal or business activities of the general public. The CB Radio Service may also be used for voice paging.

(b) The Family Radio Service (FRS)—a private, two-way, very short-distance voice and data communications service for facilitating family and group activities. The rules for this service are contained in subpart B of this part.

(c) The Low Power Radio Service (LPRS)—a private, short-distance communication service providing auditory assistance to persons with disabilities, persons who require language translation, and persons in educational settings, health care assistance to the ill, law enforcement tracking services in cooperation with law enforcement, and point-to-point network control communications for Automated Marine Telecommunications System (AMTS) coast stations licensed under part 80 of this chapter. The rules for this service are listed under subpart G of this part. Two-way voice communications are prohibited.

(d) The Medical Device Radiocommunication Service (MedRadio)—an ultra-low power radio service, for the transmission of non-voice data for the purpose of facilitating diagnostic and/or therapeutic functions involving implanted and body-worn medical devices. The rules for this service are contained in subpart I of this part.

(e) The Wireless Medical Telemetry Service (WMTS)—a private, short distance data communication service for the transmission of patient medical information to a central monitoring location in a hospital or other medical facility. Voice and video communications are prohibited. Waveforms such as electrocardiograms (ECGs) are not considered video. The rules for this service are contained in subpart H of this part.

(f) The Multi-Use Radio Service (MURS)—a private, two-way, short-distance voice or data communications service for personal or business activities of the general public. The rules for this service are contained in subpart J of this part.

(g) Dedicated Short-Range Communications Service On-Board Units (DSRCS-OBUs). The rules for this service are contained in subpart L of this part. DSRCS-OBUs may communicate with DSRCS Roadside Units (RSUs), which are authorized under part 90 of

this chapter. DSRCS, RSU, and OBU are defined in § 90.7 of this chapter.

[61 FR 28769, June 6, 1996, as amended at 61 FR 46566, Sept. 4, 1996; 64 FR 69929, Dec. 15, 1999; 65 FR 44008, July 17, 2000; 65 FR 53190, Sept. 1, 2000; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 68 FR 9901, Mar. 3, 2003; 69 FR 46445, Aug. 3, 2004; 74 FR 22705, May 14, 2009]

§ 95.402 (CB Rule 2) How do I use these rules?

(a) You must comply with these rules (See CB Rule 21 § 95.421, for the penalties for violations) when you operate a station in the CB Service from:

(1) Within or over the territorial limits of places where radio services are regulated by the FCC (see CB Rule 5, § 95.405);

(2) Aboard any vessel or aircraft registered in the United States; or

(3) Aboard any unregistered vessel or aircraft owned or operated by a United States citizen or company.

(b) Your CB station must comply with technical rules found in subpart E of part 95.

(c) Where the rules use the word ''you'', ''you'' means a person operating a CB station.

(d) Where the rules use the word ''person,'' the rules are concerned with an individual, a corporation, a partnership, an association, a joint stock company, a trust, a state, territorial or local government unit, or other legal entity.

(e) Where the rules use the term ''FCC'', that means the Federal Communications Commission.

(f) Where the rules use the term ''CB station'', that means a radio station transmitting in the CB Radio Service.

§ 95.403 (CB Rule 3) Am I eligible to operate a CB station?

You are authorized to operate a CB station unless:

(a) You are a foreign government, a representative of a foreign government, or a federal government agency; or

(b) The FCC has issued a cease and desist order to you, and the order is still in effect.

§ 95.404 (CB Rule 4) Do I need a license?

You do not need an individual license to operate a CB station. You are authorized by this rule to operate your CB station in accordance with the rules in this subpart.

§ 95.405 (CB Rule 5) Where may I operate my CB station?

You are authorized to operate your CB station from:

(a) Within or over any area of the world where radio services are regulated by the FCC. Those areas are within the territorial limits of:

(1) The fifty United States.

(2) The District of Columbia.

Caribbean Insular areas

(3) Commonwealth of Puerto Rico.

(4) Navassa Island.

(5) United States Virgin Islands (50 islets and cays).

Pacific Insular areas

(6) American Samoa (seven islands).

(7) Baker Island.

(8) Commonwealth of Northern Mariana Islands.

(9) Guam Island.

(10) Howland Island.

(11) Jarvis Island.

(12) Johnston Island (Islets East, Johnston, North and Sand).

(13) Kingman Reef.

(14) Midway Island (Islets Eastern and Sand).

(15) Palmyra Island (more than 50 islets).

(16) Wake Island (Islets Peale, Wake and Wilkes).

(b) Any other area of the world, except within the territorial limits of areas where radio services are regulated by—

(1) An agency of the United States other than the FCC. (You are subject to its rules.)

(2) Any foreign government. (You are subject to its rules.)

(c) An aircraft or ship, with the permission of the captain, within or over any area of the world where radio services are regulated by the FCC or upon or over international waters. You must operate your CB station according to

any applicable treaty to which the United States is a party.

(d) Anyone intending to operate a CB station on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra in a manner that could pose an interference threat to the Arecibo Observatory shall notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the location of the unit. Operators may wish to consult interference guidelines, which will be provided by Cornell University. Operators who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory shall be made 45 days prior to commencing operation of the unit. The notification shall state the geographical coordinates of the unit.

(2) After receipt of such notifications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections. The operator will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory. If the Commission determines that an operator has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, the unit may be allowed to operate.

[48 FR 24894, June 3, 1983, as amended at 62 FR 55535, Oct. 27, 1997; 70 FR 31374, June 1, 2005]

§ 95.406 (CB Rule 6) Are there any special restrictions on the location of my CB station?

(a) If your CB station is located on premises controlled by the Department of Defense you may be required to comply with additional regulations imposed by the commanding officer of the installation.

(b) If your C/B station will be constructed on an environmentally sensitive site, or will be operated in such a manner as to raise environmental problems, under § 1.1307 of this chapter, you must provide an environmental assessment, as set forth in § 1.1311 of this chapter, and undergo the environmental review, § 1.1312 of this chapter, before commencement of construction.

[48 FR 24894, June 3, 1983, as amended at 55 FR 20398, May 16, 1990]

How To Operate a CB Station

§ 95.407 (CB Rule 7) On what channels may I operate?

(a) Your CB station may transmit only on the following channels (frequencies):

Channel	Frequency (megahertz—MHz)
1	26.965
2	26.975
3	26.985
4	27.005
5	27.015
6	27.025
7	27.035
8	*27.055*
9	[1]*27.065*
10	27.075
11	27.085
12	27.105
13	27.115
14	27.125
15	27.135
16	27.155
17	27.165
18	27.175
19	27.185
20	27.205
21	27.215
22	27.225
23	27.255
24	27.235
25	27.245
26	27.265
27	27.275
28	27.285
29	27.295
30	27.305
31	27.315
32	27.325
33	27.335
34	27.345
35	27.355
36	27.365
37	27.375
38	27.385
39	27.395
40	27.405

[1] See paragraph (b) of this section.

(b) Channel 9 may be used only for emergency communications or for traveler assistance.

(c) You must, at all times and on all channels, give priority to emergency communication messages concerning the immediate safety of life or the immediate protection of property.

(d) You may use any channel for emergency communications or for traveler assistance.

(e) You must share each channel with other users.

(f) The FCC will not assign any channel for the private or exclusive use of any particular CB station or group of stations.

(g) The FCC will not assign any channel for the private of exclusive use of CB stations transmitting single sideband or AM.

§ 95.408 (CB Rule 8) How high may I put my antenna?

(a) *Antenna* means the radiating system (for transmitting, receiving or both) and the structure holding it up (tower, pole or mast). It also means everything else attached to the radiating system and the structure.

(b) If your antenna is mounted on a hand-held portable unit, none of the following limitations apply.

(c) If your antenna is installed at a fixed location, it (whether receiving, transmitting or both) must comply with either one of the following:

(1) The highest point must not be more than 6.10 meters (20 feet) higher than the highest point of the building or tree on which it is mounted; or

(2) The highest point must not be more than 18.3 meters (60 feet) above the ground.

(d) If your CB station is located near an airport, and if you antenna structure is more than 6.1 meters (20 feet) high, you may have to obey additional restrictions. The highest point of your antenna must not exceed one meter above the airport elevation for every hundred meters of distance from the nearest point of the nearest airport runway. Differences in ground elevation between your antenna and the airport runway may complicate this formula. If your CB station is near an airport, you may contact the nearest FCC field office for a worksheet to help you figure the maximum allowable height of your antenna. Consult part 17 of the FCC's Rules for more information.

WARNING: Installation and removal of CB station antennas near powerlines is dangerous. For your safety, follow the installation directions included with your antenna.

[48 FR 24894, June 3, 1983, as amended at 48 FR 41416, Sept. 15, 1983]

§ 95.409 (CB Rule 9) What equipment may I use at my CB station?

(a) You must use an FCC certificated CB transmitter at your CB station. You can identify an FCC certificated transmitter by the certification label placed on it by the manufacturer. You may examine a list of certificated equipment at any FCC Field Office or at FCC Headquarters. Use of a transmitter which is not FCC certificated voids your authority to operate the station.

(b) You must not make, or have made, any internal modification to a certificated CB transmitter. (See CB Rule 25, § 95.425). Any internal modification to a certificated CB transmitter cancels the certification, and use of such a transmitter voids your authority to operate the station.

[48 FR 24894, June 3, 1983, as amended at 63 FR 36610, July 7, 1998]

§ 95.410 (CB Rule 10) How much power may I use?

(a) Your CB station transmitter power output must not exceed the following values under any conditions:

AM (A3)—4 watts (carrier power) SSB—12 watts (peak envelope power)

(b) If you need more information about the power rule, see the technical rules in subpart E of part 95.

(c) Use of a transmitter which has carrier or peak envelope power in excess of that authorized voids your authority to operate the station.

§ 95.411 (CB Rule 11) May I use power amplifiers?

(a) You may not attach the following items (power amplifiers) to your certificated CB transmitter in any way:

(1) External radio frequency (RF) power amplifiers (sometimes called linears or linear amplifiers); or

(2) Any other devices which, when used with a radio transmitter as a signal source, are capable of amplifying the signal.

(b) There are no exceptions to this rule and use of a power amplifier voids your authority to operate the station.

(c) The FCC will presume you have used a linear or other external RF power amplifier if—

(1) It is in your possession or on your premises; and

(2) There is other evidence that you have operated your CB station with more power than allowed by CB Rule 10, § 95.410.

(d) Paragraph (c) of this section does not apply if you hold a license in another radio service which allows you to operate an external RF power amplifier.

[48 FR 24894, June 3, 1983, as amended at 63 FR 36610, July 7, 1998]

§ 95.412 (CB Rule 12) What communications may be transmitted?

(a) You may use your CB station to transmit two-way plain language communications. Two-way plain language communications are communications without codes or coded messages. Operating signals such as ''ten codes'' are not considered codes or coded messages. You may transmit two-way plain language communications only to other CB stations, to units of your own CB station or to authorized government stations on CB frequencies about—

(1) Your personal or business activities or those of members of your immediate family living in your household;

(2) Emergencies (see CB Rule 18, § 95.418);

(3) Traveler assistance (see CB Rule 18, § 95.418); or

(4) Civil defense activities in connection with official tests or drills conducted by, or actual emergencies announced by, the civil defense agency with authority over the area in which your station is located.

(b) You may use your CB station to transmit a tone signal only when the signal is used to make contact or to continue communications. (Examples of circuits using these signals are tone operated squelch and selective calling circuits.) If the signal is an audible tone, it must last no longer than 15 seconds at one time. If the signal is a subaudible tone, it may be transmitted continuously only as long as you are talking.

(c) You may use your CB station to transmit one-way communications (messages which are not intended to establish communications between two or more particular CB stations) only for emergency communications, traveler assistance, brief tests (radio checks) or voice paging.

§ 95.413 (CB Rule 13) What communications are prohibited?

(a) You must not use a CB station—

(1) In connection with any activity which is against federal, state or local law;

(2) To transmit obscence, indecent or profane words, language or meaning;

(3) To interfere intentionally with the communications of another CB station;

(4) To transmit one-way communications, except for emergency communications, traveler assistance, brief tests (radio checks), or voice paging;

(5) To advertise or solicit the sale of any goods or services;

(6) To transmit music, whistling, sound effects or any material to amuse or entertain;

(7) To transmit any sound effect solely to attract attention;

(8) To transmit the word ''MAYDAY'' or any other international distress signal, except when your station is located in a ship, aircraft or other vehicle which is threatened by grave and imminent danger and your are requesting immediate assistance;

(9) To communicate with, or attempt to communicate with, any CB station more than 250 kilometers (155.3 miles) away;

(10) To advertise a political candidate or political campaign; (you may use your CB radio for the business or organizational aspects of a campaign, if you follow all other applicable rules);

(11) To communicate with stations in other countries, except General Radio Service stations in Canada; or

(12) To transmit a false or deceptive communication.

(b) You must not use a CB station to transmit communications for live or delayed rebroadcast on a radio or television broadcast station. You may use your CB station to gather news items or to prepare programs.

§ 95.414 (CB Rule 14) May I be paid to use my CB station?

(a) You may not accept direct or indirect payment for transmitting with a CB station.

(b) You may use a CB station to help you provide a service, and be paid for that service, as long as you are paid only for the service and not for the actual use of the CB station.

§ 95.415 (CB Rule 15) Who is responsible for communications I make?

You are responsible for all communications which are made by you from a CB station.

§ 95.416 (CB Rule 16) Do I have to limit the length of my communications?

(a) You must limit your CB communications to the minimum practical time.

(b) If you are communicating with another CB station or stations, you, and the stations communicating with you, must limit each of your conversations to no more than five continuous minutes.

(c) At the end of your conversation, you, and the stations communicating with you, must not transmit again for at least one minute.

§ 95.417 (CB Rule 17) Do I identify my CB communications?

(a) You need not identify your CB communications.

(b) [You are encouraged to identify your CB communications by any of the following means:

(1) Previously assigned CB call sign;

(2) K prefix followed by operator initials and residence zip code;

(3) Name; or

(4) Organizational description including name and any applicable operator unit number.]

(c) [You are encouraged to use your ''handle'' only in conjuction with the methods of identification listed in paragraph (b) of this section.]

§ 95.418 (CB Rule 18) How do I use my CB station in an emergency or to assist a traveler?

(a) You must at all times and on all channels, give priority to emergency communications.

(b) When you are directly participating in emergency communications, you do not have to comply with the rule about length of transmissions (CB Rule 16, § 95.416). You must obey all other rules.

(c) You may use your CB station for communications necessary to assist a traveler to reach a destination or to receive necessary services. When you are using your CB station to assist a traveler, you do not have to obey the rule about length of transmissions (CB Rule 16, § 95.416). You must obey all other rules.

(d) You may use your CB station to transmit one-way communications concerning highway conditions to assist travelers.

[48 FR 24894, June 3, 1983, as amended at 57 FR 22442, May 28, 1992]

§ 95.419 (CB Rule 19) May I operate my CB station transmitter by remote control?

(a) You may not operate a CB station transmitter by radio remote control.

(b) You may operate a CB transmitter by wireline remote control if you obtain specific approval in writing from the FCC. To obtain FCC approval, you must show why you need to operate your station by wireline remote control. If you receive FCC approval, you must keep the approval as part of your station records. *See* CB Rule 27, § 95.427.

(c) Remote control means operation of a CB transmitter from any place other than the location of the CB transmitter. Direct mechanical control or direct electrical control by wire from some point on the same premises, craft or vehicle as the CB transmitter is not considered remote control.

[48 FR 24894, June 3, 1983, as amended at 57 FR 40343, Sept. 3, 1992; 63 FR 68976, Dec. 14, 1998]

§ 95.420 (CB Rule 20) May I connect my CB station transmitter to a telephone?

(a) You may connect your CB station transmitter to a telephone if you comply with all of the following:

(1) You or someone else must be present at your CB station and must—

(i) Manually make the connection (the connection must not be made by remote control);

(ii) Supervise the operation of the transmitter during the connection;

(iii) Listen to each communication during the connection; and

(iv) Stop all communications if there are operations in violation of these rules.

(2) Each communication during the telephone connection must comply with all of these rules.

(3) You must obey any restriction that the telephone company places on the connection of a CB transmitter to a telephone.

(b) The CB transmitter you connect to a telephone must not be shared with any other CB station.

(c) If you connect your CB transmitter to a telephone, you must use a phone patch device with has been registered with the FCC.

OTHER THINGS YOU NEED TO KNOW

§ 95.421 (CB Rule 21) What are the penalties for violating these rules?

(a) If the FCC finds that you have willfully or repeatedly violated the Communications Act or the FCC Rules, you may have to pay as much as $10,000 for each violation, up to a total of $75,000. (See section 503(b) of the Communications Act.)

(b) If the FCC finds that you have violated any section of the Communications Act or the FCC Rules, you may be ordered to stop whatever action caused the violation. (See section 312(b) of the Communications Act.)

(c) If a Federal court finds that you have willfully and knowingly violated any FCC Rule, you may be fined up to $500 for each day you committed the violation. (See section 502 of the Communications Act.)

(d) If a Federal court finds that you have willfully and knowingly violated any provision of the Communications Act, you may be fined up to $10,000 or you may be imprisoned for one year, or both. (See section 501 of the Communications Act.)

[48 FR 24894, June 3, 1983, as amended at 57 FR 40343, Sept. 3, 1992]

§ 95.422 (CB Rule 22) How do I answer correspondence from the FCC?

(a) If it appears to the FCC that you have violated the Communications Act or these rules, the FCC may send you a discrepancy notice.

(b) Within the time period stated in the notice, you must answer with:

(1) A complete written statement about the apparent discrepancy;

(2) A complete written statement about any action you have taken to correct the apparent violation and to prevent it from happening again; and

(3) The name of the person operating at the time of the apparent violation.

(c) If the FCC sends you a letter asking you questions about your CB radio station or its operation, you must answer each of the questions with a complete written statement within the time period stated in the letter.

(d) You must not shorten your answer by references to other communications or notices.

(e) You must send your answer to the FCC office which sent you the notice.

(f) You must keep a copy of your answer in your station records. (See CB Rule 27, § 95.427.)

§ 95.423 (CB Rule 23) What must I do if the FCC tells me that my CB station is causing interference?

(a) If the FCC tells you that your CB station is causing interference for technical reasons you must follow all instructions in the official FCC notice. (This notice may require you to have technical adjustments made to your equipment.)

(b) You must comply with any restricted hours of CB station operation which may be included in the official notice.

§ 95.424 (CB Rule 24) How do I have my CB station transmitter serviced?

(a) You may adjust an antenna to your CB transmitter and you may make radio checks. (A radio check means a one way transmission for a short time in order to test the transmitter.)

(b) You are responsible for the proper operation of the station at all times and are expected to provide for observations, servicing and maintenance as often as may be necessary to ensure proper operation. You must have all internal repairs or internal adjustments to your CB transmitter made in accordance with the Technical Regulations (see subpart E). The internal repairs or internal adjustments should be performed by or under the immediate

supervision and responsibility of a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by an organization or committee representative of users in those services.

(c) Except as provided in paragraph (d) of this section, each internal repair and each internal adjustment of a CB transmitter in which signals are transmitted must be made using a nonradiating (''dummy'') antenna.

(d) Brief test signals (signals not longer than one minute during any five minute period) using a radiating antenna may be transmitted in order to:

(1) Adjust an antenna to a transmitter;

(2) Detect or measure radiation of energy other than the intended signal; or

(3) Tune a receiver to your CB transmitter.

(Secs. 4(i) and 303(r), Communications Act of 1934, as amended, 47 U.S.C. 154(i) and 303(r), and sec. 553 of the Administrative Procedures Act, 5 U.S.C. 553)

[48 FR 24894, June 3, 1983, as amended at 49 FR 20673, May 16, 1984]

§ 95.425 (CB Rule 25) May I make any changes to my CB station transmitter?

(a) You must not make or have any one else make any internal modification to your CB transmitter.

(b) Internal modification does not include:

(1) Repair or servicing of a CB station transmitter (see CB Rule 24, § 95.424); or

(2) Changing plug-in modules which were certificated as part of your CB transmitter.

(c) You must not operate a CB transmitter which has been modified by anyone in any way, including modification to operate on unauthorized frequencies or with illegal power. (See CB Rules 9 and 11, §§ 95.409 and 95.411.)

[48 FR 24894, June 3, 1983, as amended at 63 FR 36610, July 7, 1998]

§ 95.426 (CB Rule 26) Do I have to make my CB station available for inspection?

(a) If an authorized FCC representative requests to inspect your CB station, you must make your CB station and records available for inspection.

(b) A CB station includes all of the radio equipment you use.

§ 95.427 (CB Rule 27) What are my station records?

Your station records include the following documents, as applicable.

(a) A copy of each response to an FCC violation notice or an FCC letter. (See CB Rule 22, § 95.422.)

(b) Each written permission received from the FCC. (See CB Rule 19, § 95.419.)

§ 95.428 (CB Rule 28) How do I contact the FCC?

(a) FCC National Call Center at 1–888–225–5322.

(b) FCC World Wide Web homepage: *http://www.fcc.gov*.

(c) In writing, to FCC, Attention: CB, 1270 Fairfield Road, Gettysburg, PA 17325–7245.

[63 FR 68976, Dec. 14, 1998]

Subpart E—Technical Regulations

SOURCE: 53 FR 36789, Sept. 22, 1988, unless otherwise noted.

GENERAL PROVISIONS

§ 95.601 Basis and purpose.

This section provides the technical standards to which each transmitter (apparatus that converts electrical energy received from a source into RF (radio frequency) energy capable of being radiated) used or intended to be used in a station authorized in any of the Personal Radio Services must comply. This section also provides requirements for obtaining certification for such transmitters. The Personal Radio Services are the GMRS (General Mobile Radio Service)—subpart A, the Family Radio Service (FRS)—subpart B, the R/C (Radio Control Radio Service)—subpart C, the CB (Citizens Band Radio Service)—subpart D, the Low Power Radio Service (LPRS)—subpart G, the Wireless Medical Telemetry Service (WMTS)—subpart H, the Medical Device Radiocommunication Service (MedRadio)—subpart I, the Multi-Use Radio Service (MURS)—subpart J,

and Dedicated Short-Range Communications Service On-Board Units (DSRCS–OBUs)—subpart L.

[69 FR 46445, Aug. 3, 2004, as amended at 74 FR 22705, May 14, 2009]

§ 95.603 Certification required.

(a) Each *GMRS transmitter* (a transmitter that operates or is intended to operate at a station authorized in the GMRS) must be certificated.

(b) Each *R/C transmitter* (a transmitter that operates or is intended to operate at a station authorized in the R/C) must be certificated, except one that transmits only in the 26–27 MHz frequency band and is *crystal controlled* (where the transmitted frequency is established by a *crystal* (a quartz piezoelectric element)).

(c) Each *CB transmitter* (a transmitter that operates or is intended to operate at a station authorized in the CB) must be certificated. No CB transmitter certificated pursuant to an application filed prior to September 10, 1976, shall be manufactured or marketed.

(d) Each FRS unit (a transmitter that operates or is intended to operate in the FRS) must be certified for use in the FRS in accordance with subpart J of part 2 of this chapter.

(e) Each Low Power Radio Service transmitter (a transmitter that operates or is intended to operate in the LPRS) must be certificated.

(f) Each Medical Device Radiocommunication Service (MedRadio) transmitter (a transmitter that operates or is intended to operate in the MedRadio service) must be certificated except for such transmitters that are not marketed for use in the United States, but which otherwise comply with the MedRadio Service technical requirements and are operated in the United States by individuals who have traveled to the United States from abroad.

(g) Each Multi-Use Radio Service transmitter (a transmitter that operates or is intended to operate in the MURS) must be certificated in accordance with subpart J of part 2 of this chapter, Provided however, that those radio units certificated as of November 12, 2002 need not be recertificated.

(h) Each Dedicated Short-Range Communications Service On-Board Unit (DSRCS-OBU) that operates or is intended to operate in the DSRCS (5.850–5.925 GHz) must be certified in accordance with subpart L of this part and subpart J of part 2 of this chapter.

[53 FR 36789, Sept. 22, 1988, as amended at 61 FR 28769, June 6, 1996; 61 FR 46567, Sept. 4, 1996; 63 FR 36610, July 7, 1998; 64 FR 69929, Dec. 15, 1999; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 69 FR 46446, Aug. 3, 2004; 74 FR 22705, May 14, 2009]

§ 95.605 Certification procedures.

Any entity may request certification for its transmitter when the transmitter is used in the GMRS, FRS, R/C, CB, 218–219 MHz Service, LPRS, MURS, or MedRadio Service following the procedures in part 2 of this chapter. Dedicated Short-Range Communications Service On-Board Units (DSRCS–OBUs) must be certified in accordance with subpart L of this part and subpart J of part 2 of this chapter.

[74 FR 22705, May 14, 2009]

§ 95.607 CB transmitter modification.

Only the holder of the grant of authorization of the particular certificated CB transmitter may make the modifications permitted under the provisions for certification (see part 2 of this chapter.) No grantee shall make any of the following modifications to the transmitter without prior written permission from the *FCC* (Federal Communications Commission):

(a) The addition of any accessory or device not specified in the application for certification and authorized by the FCC in granting the certification;

(b) The addition of any switch, control or external connection;

(c) Any modification to provide for additional transmitting frequencies, increased modulation level, a different form of modulation, or increased *TP* (RF transmitter power expressed in *W* (watts), either *mean power* (TP averaged over at least 30 cycles of the lowest modulating frequency, typically 0.1 seconds at maximum power) or *peak envelope power* (TP averaged during 1 RF cycle at the highest crest of the modulation envelope), as measured at the transmitter output antenna terminals.)

[53 FR 36789, Sept. 22, 1988, as amended at 63 FR 36610, July 7, 1998]

TECHNICAL STANDARDS

§ 95.621 GMRS transmitter channel frequencies.

(a) The GMRS transmitter *channel frequencies* (reference frequencies from which the carrier frequency, suppressed or otherwise, may not deviate by more than the specified frequency tolerance) are 462.5500, 462.5625, 462.5750, 462.5875, 462.6000, 462.6125, 462.6250, 462.6375, 462.6500, 462.6625, 462.6750, 462.6875, 462.7000, 462.7125, 462.7250, 467.5500, 467.5750, 467.6000, 467.6250, 467.6500, 467.6750, 467.7000, and 467.7250.

NOTE: Certain GMRS transmitter channel frequencies are authorized only for certain station classes and station locations. *See* part 95, subpart A.

(b) Each GMRS transmitter for mobile station, small base station and control station operation must be maintained within a frequency tolerance of 0.0005%. Each GMRS transmitter for base station (except small base), mobile relay station or fixed station operation must be maintained within a frequency tolerance of 0.00025%.

[53 FR 47718, Nov. 25, 1988]

§ 95.623 R/C transmitter channel frequencies.

(a) The R/C transmitter channel frequencies are:

MHz

26.995	72.35
27.045	72.37
27.095	72.39
27.145	72.41
27.195	72.43
27.255	72.45
72.01	72.47
72.03	72.49
72.05	72.51
72.07	72.53
72.09	72.55
72.11	72.57
72.13	72.59
72.15	72.61
72.17	72.63
72.19	72.65
72.21	72.67
72.23	72.69
72.25	72.71
72.27	72.73
72.29	72.75
72.31	72.77
72.33	72.79
72.81	75.61
72.83	75.63
72.85	75.65
72.87	75.67
72.89	75.69
72.91	75.71
72.93	75.73
72.95	75.75
72.97	75.77
72.99	75.79
75.41	75.81
75.43	75.83
75.45	75.85
75.47	75.87
75.49	75.89
75.51	75.91
75.53	75.93
75.55	75.95
75.57	75.97
75.59	75.99

NOTE: Certain R/C transmitter channel frequencies are authorized to operate only certain kinds of devices (see part 95, subpart C.)

(b) Each R/C transmitter that transmits in the 26–27 MHz frequency band with a mean TP of 2.5 W or less and that is used solely by the operator to turn on and/or off a device at a remote location, other than a device used solely to attract attention, must be maintained within a fequency tolerance of 0.01%. All other R/C transmitters that transmit in the 26–27 MHz frequency band must be maintained within a frequency tolerance of 0.005%. Except as noted in paragraph (c) of this section, R/C transmitters capable of operation in the 72–76 MHz band must be maintained within a frequency tolerance of 0.005%.

(c) All R/C transmitters capable of operation in the 72–76 MHz band that are manufactured in or imported into the United States, on or after March 1, 1992, or are marketed on or after March 1, 1993, must be maintained within a frequency tolerance of 0.002%. R/C transmitters operating in the 72–76 MHz band and marketed before March 1, 1993, may continue to be operated with a frequency tolerance of 0.005% until March 1, 1998.

[53 FR 36789, Sept. 22, 1988; 53 FR 52713, Dec. 29, 1988; 56 FR 15837, Apr. 18, 1991]

§ 95.625 CB transmitter channel frequencies.

(a) The CB transmitter channel frequencies are:

Channel No.	(MHz)
1	26.965
2	26.975
3	26.985
4	27.005
5	27.015
6	27.025
7	27.035
8	27.055
9	27.065
10	27.075
11	27.085
12	27.105
13	27.115
14	27.125
15	27.135
16	27.155
17	27.165
18	27.175
19	27.185
20	27.205
21	27.215
22	27.225
23	27.255
24	27.235
25	27.245
26	27.265
27	27.275
28	27.285
29	27.295
30	27.305
31	27.315
32	27.325
33	27.335
34	27.345
35	27.355
36	27.365
37	27.375
38	27.385
39	27.395
40	27.405

(b) Each CB transmitter must be maintained within a frequency tolerance of 0.005%.

§ 95.626 FRS unit channel frequencies.

(a) The FRS unit channel frequencies are:

Channel No.	(MHz)
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125

(b) Each FRS unit must be maintained within a frequency tolerance of 0.00025%.

[61 FR 28769, June 6, 1996. Redesignated at 77 FR 4268, Jan. 27, 2012]

§ 95.627 MedRadio transmitters in the 401–406 MHz band.

The following provisions apply only to MedRadio transmitters operating in the 401–406 MHz band.

(a) *Frequency monitoring*. Except as provided in (b) of this section, all MedRadio programmer/control transmitters operating in the 401–406 MHz band must operate under the control of a monitoring system that incorporates a mechanism for monitoring the channel or channels that the MedRadio system devices intend to occupy. The monitoring system antenna shall be the antenna normally used by the programmer/control transmitter for a communications session. Before the monitoring system of a MedRadio programmer/control transmitter initiates a MedRadio communications session, the following access criteria must be met:

(1) The monitoring system bandwidth measured at its 20 dB down points must be equal to or greater than the emission bandwidth of the intended transmission.

(2) Within 5 seconds prior to initiating a communications session, circuitry associated with a MedRadio programmer/control transmitter must monitor the channel or channels the system devices intend to occupy for a minimum of 10 milliseconds per channel.

(3) Based on use of an isotropic monitoring system antenna, the monitoring threshold power level must not be more than 10logB(Hz) −150 (dBm/Hz) + G(dBi), where B is the emission bandwidth of the MedRadio communications session transmitter having the widest emission and G is the MedRadio programmer/control transmitter monitoring system antenna gain relative to an isotropic antenna. For purposes of showing compliance with the above provision, the above calculated threshold power level must be increased or decreased by an amount equal to the monitoring system antenna gain above or below the gain of an isotropic antenna, respectively.

(4) If no signal in a MedRadio channel above the monitoring threshold power

level is detected, the MedRadio programmer/control transmitter may initiate a MedRadio-communications session involving transmissions to and from a medical implant or medical body-worn device on that channel. The MedRadio communications session may continue as long as any silent period between consecutive data transmission bursts does not exceed 5 seconds. If a channel meeting the criteria in paragraph (a)(3) of this section is unavailable, MedRadio transmitters that are capable of operating on multiple channels may transmit on the alternate channel accessible by the device with the lowest monitored ambient power level. Except as provided in paragraph (b) of this section, MedRadio transmitters that operate on a single channel and thus do not have the capability of operating on alternate channels may not transmit unless no signal on the single channel of operation exceeds the monitoring threshold power level.

(5) When a channel is selected prior to a MedRadio communications session, it is permissible to select an alternate channel for use if communications are interrupted, provided that the alternate channel selected is the next best choice using the above criteria. The alternate channel may be accessed in the event a communications session is interrupted by interference. The following criteria must be met:

(i) Before transmitting on the alternate channel, the channel must be monitored for a period of at least 10 milliseconds.

(ii) The detected power level during this 10 millisecond or greater monitoring period must be no higher than 6dB above the power level detected when the channel was chosen as the alternate channel.

(iii) In the event that this alternate channel provision is not used by the MedRadio system or if the criteria in paragraphs (a)(5)(i) and (ii) are not met, a channel must be selected using the access criteria specified in paragraphs (a)(1) through (a)(4) of this section.

(6) As used in this section, the following definitions apply:

(i) *Emission bandwidth*— Measured as the width of the signal between the points on either side of carrier center frequency that are 20 dB down relative to the maximum level of the modulated carrier. Compliance will be determined using instrumentation employing a peak detector function and a resolution bandwidth approximately equal to 1% of the emission bandwidth of the device under test.

(ii) *MedRadio channel*—Any continuous segment of spectrum in the MedRadio band that is equal to the emission bandwidth of the device with the largest bandwidth that is to participate in a MedRadio communications session.

NOTE TO PARAGRAPH (a)(6)(ii): The rules do not specify a channeling scheme for use by MedRadio systems.

(iii) *MedRadio communications session*—A collection of transmissions, that may or may not be continuous, between MedRadio system devices.

(b) *Exceptions to frequency monitoring criteria.* MedRadio devices or communications sessions that meet any one of the following criteria are not required to use the access criteria set forth in paragraph (a) of this section:

(1) MedRadio communications sessions initiated by a medical implant event.

(2) MedRadio devices operating in either the 401–401.85 MHz or 405–406 MHz bands, provided that the transmit power is not greater than 250 nanowatts EIRP and the duty cycle for such transmissions does not exceed 0.1%, based on the total transmission time during a one-hour interval, and a maximum of 100 transmissions per hour.

(3) MedRadio devices operating in the 401.85–402 MHz band, provided that the transmit power is not greater than 25 microwatts EIRP and the duty cycle for such transmissions does not exceed 0.1%, based on the total transmission time during a one hour interval, and a maximum of 100 transmissions per hour.

(4) MedRadio devices operating with a total emission bandwidth not exceeding 300 kHz centered at 403.65 MHz, provided that the transmit power is not greater than 100 nanowatts EIRP and the duty cycle for such transmissions does not exceed 0.01%, based on the total transmission time during a one-

hour interval, and a maximum of 10 transmissions per hour.

(c) *Operating frequency*. MedRadio stations authorized under this part may operate on frequencies in the 401–406 MHz band as follows provided that the out-of-band emissions are attenuated in accordance with § 95.635:

(1) MedRadio stations associated with medical implant devices, which incorporate a frequency monitoring system as set forth in paragraph (a) of this section, may operate on any of the frequencies in the 401–406 MHz band.

(2) MedRadio stations associated with medical implant devices, which do not incorporate a frequency monitoring system as set forth in paragraph (a) of this section, may operate on any frequency in 401–402 MHz or 405–406 MHz bands, or at 403.65 MHz in the 402–405 MHz band.

(3) MedRadio stations associated with medical body-worn devices, regardless of whether a frequency monitoring system as set forth in paragraph (a) of this section is employed, may operate on any of the frequencies in the 401–402 MHz or 405–406 MHz bands.

(4) MedRadio stations that are used externally to evaluate the efficacy of a more permanent medical implant device, regardless of whether a frequency monitoring system as set forth in paragraph (a) of this section is employed, may operate on any of the frequencies in the 402–405 MHz band, provided that:

(i) Such external body-worn operation is limited solely to evaluating with a patient the efficacy of a fully implanted permanent medical device that is intended to replace the temporary body-worn device;

(ii) RF transmissions from the external device must cease following the patient evaluation period, which may not exceed 30 days, except where a health care practitioner determines that additional time is necessary due to unforeseen circumstances;

(iii) The maximum output power of the temporary body-worn device shall not exceed 200 nW EIRP; and

(iv) The temporary body-worn device must comply fully with all other MedRadio rules applicable to medical implant device operation in the 402–405 MHz band.

(d) *Authorized bandwidth*. The authorized bandwidth of the emission from a MedRadio station operating between 402–405 MHz shall not exceed 300 kHz, and no communications session involving MedRadio stations shall use more than a total of 300 kHz of bandwidth during such a session. The authorized bandwidth of the emission from a MedRadio station operating between 401–401.85 MHz or 405–406 MHz shall not exceed 100 kHz, and no communications session involving MedRadio stations shall use more than a total of 100 kHz of bandwidth during such a session. The authorized bandwidth of the emission from a MedRadio station operating between 401.85–402 MHz shall not exceed 150 kHz, and no communications session involving MedRadio stations shall use more than a total of 150 kHz of bandwidth during such a session.

NOTE TO PARAGRAPH (d): This provision does not preclude full duplex or half duplex communications provided that the total amount of bandwidth utilized by all of the MedRadio channels employed in such a MedRadio communications session does not exceed 300 kHz in the 402–405 MHz band, or 100 kHz in the 401–402 MHz and 405–406 MHz bands.

(e) *Frequency stability*. Each transmitter in the MedRadio service must maintain a frequency stability of ±100 ppm of the operating frequency over the range:

(1) 25 °C to 45 °C in the case of medical implant transmitters; and

(2) 0 °C to 55 °C in the case of MedRadio programmer/control transmitters and MedRadio body-worn transmitters.

(f) *Shared access*. The provisions of this section shall not be used to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum for other MedRadio systems.

(g) *Measurement procedures*. (1) MedRadio transmitters shall be tested for frequency stability, radiated emissions and EIRP limit compliance in accordance with paragraphs (g)(2) and (g)(3) of this section.

(3) Radiated emissions and EIRP measurements may be determined by measuring the radiated field from the equipment under test at 3 meters and calculating the EIRP. The equivalent

radiated field strength at 3 meters for 25 microwatts, 250 nanowatts, and 100 nanowatts EIRP is 18.2, 1.8, or 1.2 mV/meter, respectively, when measured on an open area test site; or 9.1, 0.9, or 0.6 mV/meter, respectively, when measured on a test site equivalent to free space such as a fully anechoic test chamber. Compliance with the maximum transmitter power requirements set forth in § 95.639(f) shall be based on measurements using a peak detector function and measured over an interval of time when transmission is continuous and at its maximum power level. In lieu of using a peak detector function, measurement procedures that have been found to be acceptable to the Commission in accordance with § 2.947 of this chapter may be used to demonstrate compliance.

(2) Frequency stability testing shall be performed over the temperature range set forth in (e) of this section.

(3) Radiated emissions and EIRP measurements may be determined by measuring the radiated field from the equipment under test at 3 meters and calculating the EIRP. The equivalent radiated field strength at 3 meters for 25 microwatts, 250 nanowatts, and 100 nanowatts EIRP is 18.2, 1.8, or 1.2 mV/meter, respectively, when measured on an open area test site; or 9.1, 0.9, or 0.6 mV/meter, respectively, when measured on a test site equivalent to free space such as a fully anechoic test chamber. Compliance with the maximum transmitter power requirements set forth in § 95.639(f) shall be based on measurements using a peak detector function and measured over an interval of time when transmission is continuous and at its maximum power level. In lieu of using a peak detector function, measurement procedures that have been found to be acceptable to the Commission in accordance with § 2.947 of this chapter may be used to demonstrate compliance.

(i) For a transmitter intended to be implanted in a human body, radiated emissions and EIRP measurements for transmissions by stations authorized under this section may be made in accordance with a Commission-approved human body simulator and test technique. A formula for a suitable tissue substitute material is defined in OET Bulletin 65 Supplement C (01–01).

[74 FR 22705, May 14, 2009, as amended at 75 FR 52477, Aug. 26, 2010. Redesignated and amended at 77 FR 4268, Jan. 27, 2012]

§ 95.628 MedRadio transmitters in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz and 2360–2400 MHz bands.

The following provisions apply to MedRadio transmitters operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands as part of a Medical Micropower Network (MMN) and in the 2360–2400 MHz band as part of a Medical Body Area Network (MBAN).

(a) *Operating frequencies.* A MedRadio station authorized under this part must have out-of-band emissions that are attenuated in accordance with § 95.635.

(1) Only MedRadio stations that are part of an MMN may operate in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz frequency bands. Each MedRadio station that is part of an MMN must be capable of operating in each of the following frequency bands: 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz. All MedRadio stations that are part of a single MMN must operate in the same frequency band.

(2) Only MedRadio stations that are part of an MBAN may operate in the 2360–2400 MHz frequency band.

(b) *Requirements for a Medical Micropower Network.* (1) *Frequency monitoring.* MedRadio programmer/control transmitters must incorporate a mechanism for monitoring the authorized bandwidth of the frequency band that the MedRadio transmitters intend to occupy. The monitoring system antenna shall be the antenna used by the programmer/control transmitter for a communications session.

(i) The MedRadio programmer/control transmitter shall be capable of monitoring any occupied frequency band at least once every second and monitoring alternate frequency bands within two seconds prior to executing a change to an alternate frequency band.

(ii) The MedRadio programmer/control transmitter shall move to another frequency band within one second of detecting a persistent (*i.e.*, lasting

more than 50 milliseconds in duration) signal level greater than −60 dBm as received by a 0 dBi gain antenna in any 12.5 kHz bandwidth within the authorized bandwidth.

(iii) The MedRadio programmer/control transmitter shall be capable of monitoring the authorized bandwidth of the occupied frequency band to determine whether either direction of the communications link is becoming degraded to the extent that communications is likely to be lost for more than 45 milliseconds. Upon making such a determination the MedRadio programmer/control transmitter shall move to another frequency band.

(2) *MedRadio transmitters*. MedRadio transmitters shall incorporate a programmable means to implement a system shutdown process in the event of communication failure, on command from the MedRadio programmer/control transmitter, or when no frequency band is available. The shutdown process shall commence within 45 milliseconds after loss of the communication link or receipt of the shutdown command from the MedRadio programmer/control transmitter.

(3) *MedRadio programmer/control transmitters*. MedRadio programmer/control transmitters shall have the ability to operate in the presence of other primary and secondary users in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands.

(4) *Authorized bandwidth*. The 20 dB authorized bandwidth of the emission from a MedRadio station operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands shall not exceed 6 MHz.

(c) *Requirements for Medical Body Area Networks*. A MedRadio programmer/control transmitter shall not commence operating and shall automatically cease operating in the 2360–2390 MHz band if it does not receive, in accordance with the protocols specified by the manufacturer, a control message permitting such operation Additionally, a MedRadio programmer/control transmitter operating in the 2360–2390 MHz band shall comply with a control message that notifies the device to limit its transmissions to segments of the 2360–2390 MHz band or to cease operation in the band.

(d) *Frequency stability*. Each transmitter in the MedRadio service must maintain a frequency stability of ±100 ppm of the operating frequency over the range:

(1) 25 °C to 45 °C in the case of medical implant transmitters; and

(2) 0 °C to 55 °C in the case of MedRadio programmer/control transmitters and Medical body-worn transmitters.

(e) *Shared access*. The provisions of this section shall not be used to extend the range of spectrum occupied over space or time for the purpose of denying fair access to spectrum for other MedRadio systems.

(f) *Measurement procedures*. (1) MedRadio transmitters shall be tested for frequency stability, radiated emissions and EIRP limit compliance in accordance with paragraphs (f)(2) and (3) of this section.

(2) Frequency stability testing shall be performed over the temperature range set forth in (d) of this section.

(3) Radiated emissions and EIRP limit measurements may be determined by measuring the radiated field from the equipment under test at 3 meters and calculating the EIRP. The equivalent radiated field strength at 3 meters for 1 milliwatt, 25 microwatts, 250 nanowatts, and 100 nanowatts EIRP is 115.1, 18.2, 1.8, or 1.2 mV/meter, respectively, when measured on an open area test site; or 57.55, 9.1, 0.9, or 0.6 mV/meter, respectively, when measured on a test site equivalent to free space such as a fully anechoic test chamber. Compliance with the maximum transmitter power requirements set forth in § 95.639(f) shall be based on measurements using a peak detector function and measured over an interval of time when transmission is continuous and at its maximum power level. In lieu of using a peak detector function, measurement procedures that have been found to be acceptable to the Commission in accordance with § 2.947 of this chapter may be used to demonstrate compliance. For a transmitter intended to be implanted in a human body, radiated emissions and EIRP measurements for transmissions by stations authorized under this section may be made in accordance with a Commission-approved human body

simulator and test technique. A formula for a suitable tissue substitute material is defined in OET Bulletin 65 Supplement C (01–01).

[77 FR 55732, Sept. 11, 2012]

§ 95.629 LPRS transmitter frequencies.

(a) LPRS transmitters may operate on any frequency listed in paragraphs (b), (c), and (d) of this section. Channels 19, 20, 50, and 151–160 are available exclusively for law enforcement tracking purposes. AMTS transmissions are limited to the 216.750–217.000 MHz band for low power point-to-point network control communications by AMTS coast stations. Other AMTS transmissions in the 216–217 MHz band are prohibited.

(b) *Standard band channels.* (1) The following table indicates standard band frequencies. The channel bandwidth is 25 kHz.

Channel No.	Center frequency (MHz)
1	216.0125
2	216.0375
3	216.0625
4	216.0875
5	216.1125
6	216.1375
7	216.1625
8	216.1875
9	216.2125
10	216.2375
11	216.2625
12	216.2875
13	216.3125
14	216.3375
15	216.3625
16	216.3875
17	216.4125
18	216.4375
19	216.4625
20	216.4875
21	216.5125
22	216.5375
23	216.5625
24	216.5875
25	216.6125
26	216.6375
27	216.6625
28	216.6875
29	216.7125
30	216.7375
31	216.7625
32	216.7875
33	216.8125
34	216.8375
35	216.8625
36	216.8875
37	216.9125
38	216.9375
39	216.9625
40	216.9875

(2) LPRS transmitters operating on standard band channels must be maintained within a frequency stability of 50 parts per million.

(c) *Extra band channels.* (1) The following table indicates extra band frequencies. The channel bandwidth is 50 kHz.

Channel No.	Center frequency (MHz)
41	216.025
42	216.075
43	216.125
44	216.175
45	216.225
46	216.275
47	216.325
48	216.375
49	216.425
50	216.475
51	216.525
52	216.575
53	216.625
54	216.675
55	216.725
56	216.775
57	216.825
58	216.875
59	216.925
60	216.975

(2) LPRS transmitters operating on extra band channels must be maintained within a frequency stability of 50 parts per million.

(d) *Narrowband channels.* (1) The following table indicates narrowband frequencies. The channel bandwidth is 5 kHz and the authorized bandwidth is 4 kHz.

Channel No.	Center frequency (MHz)
61	216.0025
62	216.0075
63	216.0125
64	216.0175
65	216.0225
66	216.0275
67	216.0325
68	216.0375
69	216.0425
70	216.0475
71	216.0525
72	216.0575
73	216.0625
74	216.0675
75	216.0725
76	216.0775
77	216.0825
78	216.0875
79	216.0925
80	216.0975
81	216.1025
82	216.1075
83	216.1125
84	216.1175

Channel No.	Center frequency (MHz)
85	216.1225
86	216.1275
87	216.1325
88	216.1375
89	216.1425
90	216.1475
91	216.1525
92	216.1575
93	216.1625
94	216.1675
95	216.1725
96	216.1775
97	216.1825
98	216.1875
99	216.1925
100	216.1975
101	216.2025
102	216.2075
103	216.2125
104	216.2175
105	216.2225
106	216.2275
107	216.2325
108	216.2375
109	216.2425
110	216.2475
111	216.2525
112	216.2575
113	216.2625
114	216.2675
115	216.2725
116	216.2775
117	216.2825
118	216.2875
119	216.2925
120	216.2975
121	216.3025
122	216.3075
123	216.3125
124	216.3175
125	216.3225
126	216.3275
127	216.3325
128	216.3375
129	216.3425
130	216.3475
131	216.3525
132	216.3575
133	216.3625
134	216.3675
135	216.3725
136	216.3775
137	216.3825
138	216.3875
139	216.3925
140	216.3975
141	216.4025
142	216.4075
143	216.4125
144	216.4175
145	216.4225
146	216.4275
147	216.4325
148	216.4375
149	216.4425
150	216.4475
151	216.4525
152	216.4575
153	216.4625
154	216.4675
155	216.4725
156	216.4775
157	216.4825
158	216.4875
159	216.4925
160	216.4975
161	216.5025
162	216.5075
163	216.5125
164	216.5175
165	216.5225
166	216.5275
167	216.5325
168	216.5375
169	216.5425
170	216.5475
171	216.5525
172	216.5575
173	216.5625
174	216.5675
175	216.5725
176	216.5775
177	216.5825
178	216.5875
179	216.5925
180	216.5975
181	216.6025
182	216.6075
183	216.6125
184	216.6175
185	216.6225
186	216.6275
187	216.6325
188	216.6375
189	216.6425
190	216.6475
191	216.6525
192	216.6575
193	216.6625
194	216.6675
195	216.6725
196	216.6775
197	216.6825
198	216.6875
199	216.6925
200	216.6975
201	216.7025
202	216.7075
203	216.7125
204	216.7175
205	216.7225
206	216.7275
207	216.7325
208	216.7375
209	216.7425
210	216.7475
211	216.7525
212	216.7575
213	216.7625
214	216.7675
215	216.7725
216	216.7775
217	216.7825
218	216.7875
219	216.7925
220	216.7975
221	216.8025
222	216.8075
223	216.8125
224	216.8175
225	216.8225
226	216.8275
227	216.8325
228	216.8375

Channel No.	Center frequency (MHz)
229	216.8425
230	216.8475
231	216.8525
232	216.8575
233	216.8625
234	216.8675
235	216.8725
236	216.8775
237	216.8825
238	216.8875
239	216.8925
240	216.8975
241	216.9025
242	216.9075
243	216.9125
244	216.9175
245	216.9225
246	216.9275
247	216.9325
248	216.9375
249	216.9425
250	216.9475
251	216.9525
252	216.9575
253	216.9625
254	216.9675
255	216.9725
256	216.9775
257	216.9825
258	216.9875
259	216.9925
260	216.9975

(2) LPRS transmitters operating on narrowband channels must be maintained within a frequency stability of 1.5 parts per million.

[61 FR 46567, Sept. 4, 1996]

§ 95.630 WMTS Transmitter frequencies.

WMTS transmitters may operate in the frequency bands specified as follows:

608–614 MHz

1395–1400 MHz

1427–1429.5 MHz except at the locations listed in § 90.259(b)(4) where WMTS may operate in the 1429–1431.5 MHz band.

[69 FR 39868, July 1, 2004]

§ 95.631 Emission types.

(a) A GMRS transmitter must transmit only emission types A1D, F1D, G1D, H1D, J1D, R1D, A3E, F3E, G3E, H3E, J3E or R3E. A non-voice emission is limited to selective calling or tone-operated squelch tones to establish or continue voice communications. See § 95.181 (g) and (h).

(b) An R/C transmitter may transmit any appropriate non-voice emission which meets the emission limitations of § 95.633.

(c) A CB transmitter may transmit only emission types A1D, H1D, J1D, R1D, A3E, H3E, J3E, R3E. A non-voice emission is limited to selective calling or tone-operated squelch tones to establish or continue voice communications. See § 95.412 (b) and (c).

(d) An FRS unit may transmit only emission type F3E or F2D. A non-voice emission is limited to selective calling or tone-operated squelch tones to establish or continue voice communications, digital data transmission of location information or text messaging.

(e) No GMRS or CB transmitter shall employ a digital modulation or emission.

(f) No GMRS, CB or R/C transmitter shall transmit non-voice data.

(g) An LPRS station may transmit any emission type appropriate for communications in this service. Two-way voice communications, however, are prohibited.

(h) A MedRadio station may transmit any emission type appropriate for communications in this service. Voice communications, however, are prohibited.

(i) A WMTS station may transmit any emission type appropriate for communications in this service, except for video and voice. Waveforms such as electrocardiograms (ECGs) are not considered video.

(j) A MURS transmitter must transmit only emission types A1D, A2B, A2D, A3E, F2B, F1D, F2D, F3E, G3E. Emission types A3E, F3E and G3E include selective calling or tone-operated squelch tones to establish or continue voice communications. MURS transmitters are prohibited from transmitting in the continuous carrier mode.

(k) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988. Redesignated and amended at 61 FR 28769, June 6, 1996, and further redesignated and amended at 61 FR 46567, 46568, Sept. 4, 1996; 64 FR 69930, Dec. 15, 1999; 65 FR 44008, July 17, 2000; 65 FR 53190, Sept. 1, 2000; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 68 FR 9901, Mar. 3, 2003; 69 FR 46446, Aug. 3, 2004; 74 FR 22706, May 14, 2009]

§ 95.632 MURS transmitter frequencies.

(a) The MURS transmitter channel frequencies are 151.820 MHz, 151.880 MHz, 151.940 MHz, 154.570 MHz, 154.600 MHz.

(b) The authorized bandwidth is 11.25 kHz on frequencies 151.820 MHz, 151.880 MHz and 151.940 MHz. The authorized bandwidth is 20.0 kHz on frequencies 154.570 and 154.600 MHz.

(c) MURS transmitters must maintain a frequency stability of 5.0 ppm, or 2.0 ppm if designed to operate with a 6.25 kHz bandwidth.

[65 FR 60877, Oct. 13, 2000, as amended at 67 FR 63289, Oct. 11, 2002]

§ 95.633 Emission bandwidth.

(a) The *authorized bandwidth* (maximum permissible bandwidth of a transmission) for emission type H1D, J1D, R1D, H3E, J3E or R3E is 4 kHz. The authorized bandwidth for emission type A1D or A3E is 8 kHz. The authorized bandwidth for emission type F1D, G1D, F3E or G3E is 20 kHz.

(b) The authorized bandwidth for any emission type transmitted by an R/C transmitter is 8 kHz.

(c) The authorized bandwidth for emission type F3E or F2D transmitted by a FRS unit is 12.5 kHz.

(d) For transmitters in the LPRS:

(1) The authorized bandwidth for narrowband frequencies is 4 kHz and the channel bandwidth is 5 kHz

(2) The channel bandwidth for standard band frequencies is 25 kHz.

(3) The channel bandwidth for extra band frequencies is 50 kHz.

(4) AMTS stations may use the 216.750–217.000 MHz band as a single 250 kHz channel so long as the signal is attenuated as specified in § 95.635(c).

(e) For transmitters in the MedRadio Service:

(1) For stations operating in 402–405 MHz, the maximum authorized emission bandwidth is 300 kHz. For stations operating in 401–401.85 MHz or 405–406 MHz, the maximum authorized emission bandwidth is 100 kHz. For stations operating in 401.85–402 MHz, the maximum authorized emission bandwidth is 150 kHz. For stations operating in 413–419 MHz, 426–432 MHz, 438–444 MHz, or 451–457 MHz, the maximum authorized emission bandwidth is 6 megahertz. For stations operating in 2360–2400 MHz, the maximum authorized emission bandwidth is 5 megahertz.

(2) Lesser emission bandwidths may be employed, provided that the unwanted emissions are attenuated as provided in § 95.635. See §§ 95.627(g), § 95.628(h), and 95.639(f) regarding maximum transmitter power and measurement procedures.

(3) Emission bandwidth will be determined by measuring the width of the signal between points, one below the carrier center frequency and one above the carrier center frequency, that are 20 dB down relative to the maximum level of the modulated carrier. Compliance with the emission bandwidth limit is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

(f) The authorized bandwidth for any emission type transmitted by a MURS transmitter is specified as follows:

(1) Emissions on frequencies 151.820 MHz, 151.880 MHz, and 151.940 MHz are limited to 11.25 kHz.

(2) Emissions on frequencies 154.570 and 154.600 MHz are limited to 20.0 kHz.

(3) Provided, however, that all A3E emissions are limited to 8 kHz.

(g) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988. Redesignated and amended at 61 FR 28769, June 6, 1996, and further redesignated and amended at 61 FR 46567, 46568, Sept. 4, 1996; 64 FR 69930, Dec. 15, 1999; 65 FR 60878, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 68 FR 9902, Mar. 3, 2003; 69 FR 46446, Aug. 3, 2004; 74 FR 22707, May 14, 2009; 77 FR 4268, Jan. 27, 2012; 77 FR 55733, Sept. 11, 2012]

§ 95.635 Unwanted radiation.

(a) In addition to the procedures in part 2, the following requirements apply to each transmitter both with and without the connection of all attachments acceptable for use with the transmitter, such as an external speaker, microphone, power cord, antenna, etc.

(b) The power of each unwanted emission shall be less than TP as specified in the applicable paragraphs listed in the following table:

Transmitter	Emission type	Applicable paragraphs (b)
GMRS	A1D, A3E, F1D, G1D, F3E, G3E with filtering	(1), (3), (7).
	A1D, A3E, F1D, G1D, F3E, G3E without filtering	(5), (6), (7).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (7).
FRS	F3E with filtering	(1), (3), (7).
R/C:		
27 MHz	As specified in § 95.631(b)	(1), (3), (7).
72–76 MHz	As specified in § 95.631(b)	(1), (3), (7), (10), (11), (12).
CB	A1D, A3E	(1), (3), (8), (9).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (8), (9).
	A1D, A3E type accepted before September 10, 1976	(1), (3), (7).
	H1D, J1D, R1D, H3E, J3E, R3E type accepted before September 10, 1986.	(2), (4), (7).
LPRS	As specified in paragraph (c).	
MedRadio	As specified in paragraph (d).	
DSRCS–OBU	As specified in paragraph (f) of this section.	

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

(2) At least 25 dB on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 150% of the authorized bandwidth.

(3) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

(4) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 150% up to and including 250% of the authorized bandwidth.

(5) At least 83 $\log_{10}$ (f_d/5) dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz), of more than 5 kHz up to and including 10 kHz.

(6) At least 116 $\log_{10}$ (f_d/6.1) dB, or if less, 50 + 10 $\log_{10}$ (T) dB, on any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz), of more than 10 kHz up to and including 250% of the authorized bandwidth.

(7) At least 43 + 10 $\log_{10}$ (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

(8) At least 53 + 10 $\log_{10}$ (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

(9) At least 60 dB on any frequency twice or greater than twice the fundamental frequency.

(10) At least 45 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 125% of the authorized bandwidth.

(11) At least 55 dB on any frequency removed from the center of the authorized bandwidth by more than 125% up to and including 250% of the authorized bandwidth.

(12) At least 56 + 10 $\log_{10}$ (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

(c) For transmitters designed to operate in the LPRS, emissions shall be attenuated in accordance with the following:

(1) Emissions for LPRS transmitters operating on standard band channels (25 kHz) shall be attenuated below the unmodulated carrier in accordance with the following:

(i) Emissions 12.5 kHz to 22.5 kHz away from the channel center frequency: at least 30 dB; and

(ii) Emissions more than 22.5 kHz away from the channel center frequency: at least 43 + 10log(carrier power in watts) dB.

(2) Emissions for LPRS transmitters operating on extra band channels (50 kHz) shall be attenuated below the unmodulated carrier in accordance with the following:

(i) Emissions 25 kHz to 35 kHz from the channel center frequency: at least 30 dB; and

(ii) Emissions more than 35 kHz away from the channel center frequency: at

least 43 + 10log(carrier power in watts) dB.

(3) Emissions for LPRS transmitters operating on narrowband channels (5 kHz) shall be attenuated below the power (P) of the highest emission, measured in peak values, contained within the authorized bandwidth (4 kHz) in accordance with the following:

(i) On any frequency within the authorized bandwidth: Zero dB;

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2 kHz up to and including 3.75 kHz: The lesser of 30 + 20(f_d-2) dB, or 55 + 10 log(P), or 65 dB; and

(iii) On any frequency beyond 3.75 kHz removed from the center of the authorized bandwidth: At least 55 + 10 log(P) dB.

(4) Emissions from AMTS transmitters using a single 250 kHz channel shall be attenuated below the unmodulated carrier in accordance with the following:

(i) Emissions from 125 kHz to 135 kHz away from the channel center frequency; at least 30 dB; and

(ii) Emissions more than 135 kHz away from the channel center frequency; at least 43 + 10log(carrier power in watts) dB.

(d) For transmitters designed to operate in the MedRadio service, emissions shall be attenuated in accordance with the following:

(1) Emissions from a MedRadio transmitter shall be attenuated to a level no greater than the field strength limits shown in the following table when they:

(i) Are more than 250 kHz outside of the 402–405 MHz band (for devices designed to operate in the 402–405 MHz band);

(ii) Are more than 100 kHz outside of either the 401–402 MHz or 405–406 MHz bands (for devices designed to operate in the 401–402 MHz or 405–406 MHz bands);

(iii) Are in the 406.000–406.100 MHz band (for devices designed to operate in the 401–402 MHz or 405–406 MHz bands); or

(iv) Are more than 2.5 MHz outside of the 413–419 MHz, 426–432 MHz, 438–444 MHz, or 451–457 MHz bands (for devices designed to operate in the 413–457 MHz band).

Frequency (MHz)	Field strength (μV/m)	Measurement distance (m)
30–88	100	3
88–216	150	3
216–960	200	3
960 and above	500	3

NOTE—At band edges, the tighter limit applies.

(v) Are more than 2.5 MHz outside of the 2360–2400 MHz band (for devices designed to operate in the 2360–2400 MHz band).

(2) The emission limits shown in the table of paragraph (d)(1) are based on measurements employing a CISPR quasi-peak detector except that above 1 GHz, the limit is based on measurements employing an average detector. Measurements above 1 GHz shall be performed using a minimum resolution bandwidth of 1 MHz. See also § 95.605.

(3) The emissions from a MedRadio transmitter must be measured to at least the tenth harmonic of the highest fundamental frequency designed to be emitted by the transmitter.

(4) For devices designed to operate in the 402–405 MHz band: Emissions within the band more than 150 kHz away from the center frequency of the spectrum the transmission is intended to occupy and emissions 250 kHz or less below 402 MHz or above 405 MHz band will be attenuated below the maximum permitted output power by at least 20 dB.

(5) For devices designed to operate in the 401–402 MHz or 405–406 MHz bands: Emissions between 401–401.85 MHz or 405–406 MHz within the MedRadio bands that are more than 50 kHz away from the center frequency of the spectrum the transmission is intended to occupy (or more than 75 kHz away from the center frequency of MedRadio transmitters operating between 401.85–402 MHz) and emissions 100 kHz or less below 401 MHz or above 406 MHz shall be attenuated below the maximum permitted output power by at least 20 dB.

(6) For devices designed to operate in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands: In the first 2.5 megahertz beyond any of the frequency bands authorized for MMN operation, the EIRP level associated with any unwanted emission must be

attenuated within a 1 megahertz bandwidth by at least 20 dB relative to the maximum EIRP level within any 1 megahertz of the fundamental emission.

(7) For devices designed to operate in the 2360–2400 MHz band: In the first 2.5 megahertz beyond any of the frequency bands authorized for MBAN operation, the EIRP level associated with any unwanted emission must be attenuated within a 1 megahertz bandwidth by at least 20 dB relative to the maximum EIRP level within any 1 megahertz of the fundamental emission.

(8) Compliance with the limits described in subparagraphs (4) through (6) are based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

(e) For transmitters designed to operate in the MURS, transmitters shall comply with the following:

Frequency	Mask with audio low pass filter	Mask without audio low pass filter
151.820 MHz, 151.880 MHz and 151.940 MHz	(1)	(1)
154.570 MHz and 154.600 MHz	(2)	(3)

(1) *Emission Mask 1*—For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(i) On any frequency from the center of the authorized bandwidth f_o to 5.625 kHz removed from fo: Zero dB.

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5.625 kHz but no more than 12.5 kHz: at least $7.27(f_d - 2.88$ kHz) dB.

(iii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: at least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(2) *Emission Mask 2*—For transmitters designed to operate with a 25 kHz channel bandwidth that are equipped with an audio low-pass filter, the power of any emission must be below the unmodulated carrier power (P) as follows:

(i) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: at least 25 dB.

(ii) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: at least 35 dB.

(iii) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: at least 43 + 10 log (P) dB.

(3) *Emission Mask 3*—For transmitters designed to operate with a 25 kHz channel bandwidth that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier output power (P) as follows:

(i) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 5 kHz, but not more than 10 kHz: at least 83 log (f_d/5) dB.

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but not more than 250 percent of the authorized bandwidth: at least 29 log (f_d^2/11) dB or 50 dB, whichever is the lesser attenuation.

(iii) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: at least 43 + 10 log (P) dB.

(f) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988, as amended at 56 FR 15837, Apr. 18, 1991. Redesignated and amended at 61 FR 28769, 28770, June 6, 1996, and further redesignated and amended at 61 FR 46567, 46568, Sept. 4, 1996; 63 FR 36610, July 7, 1998; 64 FR 69931, Dec. 15, 1999; 65 FR 60878, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 69 FR 46446, Aug. 3, 2004; 74 FR 22707, May 14, 2009; 77 FR 4269, Jan. 27, 2012; 77 FR 55733, Sept. 11, 2012]

§ 95.637 Modulation standards.

(a) A GMRS transmitter that transmits emission types F1D, G1D, or G3E must not exceed a peak frequency deviation of plus or minus 5 kHz. A GMRS

transmitter that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 5 kHz. A FRS unit that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 2.5 kHz, and the audio frequency response must not exceed 3.125 kHz .

(b) Each GMRS transmitter, except a mobile station transmitter with a power output of 2.5 W or less, must automatically prevent a greater than normal audio level from causing overmodulation. The transmitter also must include audio frequency low pass filtering, unless it complies with the applicable paragraphs of § 95.631 (without filtering.) The filter must be between the modulation limiter and the modulated stage of the transmitter. At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least 60 $\log_{10}$ (f/3) dB greater than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB greater than the attenuation at 1 kHz.

(c) When emission type A3E is transmitted, the modulation must be greater than 85% but must not exceed 100%. Simultaneous amplitude modulation and frequency or phase modulation of a transmitter are not permitted.

(d) When emission type A3E is transmitted by a CB transmitter having a TP of greater than 2.5 W, the CB transmitter must automatically prevent the modulation from exceeding 100%.

(e) Each CB transmitter that transmits emission type H3E, J3E or R3E must be capable of transmitting the upper sideband. The capability of also transmitting the lower sideband is permitted.

(f) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988. Redesignated and amended at 61 FR 28769, 28770, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996; 69 FR 46446, Aug. 3, 2004]

§ 95.639 Maximum transmitter power.

(a) No GMRS transmitter, under any condition of modulation, shall exceed:

(1) 50 W *Carrier power* (average TP during one unmodulated RF cycle) when transmitting emission type A1D, F1D, G1D, A3E, F3E or G3E.

(2) 50 W peak envelope TP when transmitting emission type H1D, J1D, R1D, H3E, J3E or R3E.

(b) No R/C transmitter, under any condition of modulation, shall exceed a carrier power or peak envelope TP (single-sideband only) of:

(1) 4 W in the 26–27 MHz frequency band, except on channel frequency 27.255 MHz;

(2) 25 W on channel frequency 27.255 MHz;

(3) 0.75 W in the 72–76 MHz frequency band.

(c) No CB transmitter, under any condition of modulation, shall exceed:

(1) 4 W Carrier power when transmitting emission type A1D or A3E;

(2) 12 W peak envelope TP when transmitting emission type H1D, J1D, R1D, H3E, J3E or R3E. Each CB transmitter which transmits emission type H3E, J3E or R3E must automatically prevent the TP from exceeding 12 W peak envelope TP or the manufacturer's rated peak envelope TP, whichever is less.

(d) No FRS unit, under any condition of modulation, shall exceed 0.500 W effective radiated power (ERP).

(e) The maximum transmitter output power authorized for LPRS stations is 100 mW.

(f) In the MedRadio Service:

(1) For transmitters operating in the 401–406 MHz band that are not excepted under § 95.627(b) from the frequency monitoring requirements of § 95.627(a), the maximum radiated power in any 300 kHz bandwidth by MedRadio transmitters operating at 402–405 MHz, or in any 100 kHz bandwidth by MedRadio transmitters operating at 401–402 MHz or 405–406 MHz shall not exceed 25 microwatts EIRP. For transmitters that are excepted under § 95.627(b) from the frequency monitoring requirements of § 95.627(a), the power radiated by any station operating in 402–405 MHz shall not exceed 100 nanowatts EIRP confined to a maximum total emission bandwidth of 300 kHz centered at 403.65 MHz, the power radiated by any station operating in 401–401.85 MHz or 405–406 MHz shall not exceed 250 nanowatts EIRP in any 100 kHz bandwidth and the power radiated by any station operating in 401.85–402 MHz shall not exceed

25 microwatts in the 150 kHz bandwidth. See §§ 95.633(e).

(2) For transmitters operating in 413–419 MHz, 426–432 MHz, 438–444 MHz, or 451–457 MHz bands, the peak EIRP over the frequency bands of operation shall not exceed the lesser of 1 mW or 10 log B—7.782 dBm, where B is the 20 dB emission bandwidth in MHz; and the peak power spectral density shall not exceed 800 microwatts per megahertz in any 1 megahertz band.

(3) For transmitters operating in the 2360–2390 MHz band, the maximum EIRP over the frequency bands of operation shall not exceed the lesser of 1 mW or 10*log (B) dBm, where B is the 20 dB emission bandwidth in MHz.

(4) For transmitters operating in the 2390–2400 MHz band, the maximum EIRP over the frequency bands of operation shall not exceed the lesser of 20 mW or 16+10*log (B) dBm, where B is the 20 dB emission bandwidth in MHz.

(5) The antenna associated with any MedRadio transmitter must be supplied with the transmitter and shall be considered part of the transmitter subject to equipment authorization. Compliance with these EIRP limits may be determined as set forth in § 95.627(g) or § 95.628(h), as applicable.

(g) The maximum field strength authorized for WMTS stations in the 608–614 MHz band is 200 mV/m, measured at 3 meters. For stations in the 1395–1400 MHz and 1427–1429.5 MHz bands, the maximum field strength is 740 mV/m, measured at 3 meters.

(h) No MURS unit, under any condition of modulation, shall exceed 2 Watts transmitter power output.

(i) DSRCS-OBUs are governed under subpart L of this part, except the maximum output power for portable DSRCS-OBUs is 1.0 mW. For purposes of this paragraph, a portable is a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user.

[53 FR 36789, Sept. 22, 1988; 53 FR 44144, Nov. 1, 1988. Redesignated at 61 FR 28769, 28770, June 6, 1996, and further redesignated at 61 FR 46567, 46569, Sept. 4, 1996]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 95.639, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

CERTIFICATION REQUIREMENTS

§ 95.643 DSRCS-OBU certification.

Sections 95.645 through 95.655 do not apply to certification of DSRCS-OBUs. DSRCS-OBUs must be certified in accordance with subpart L of this part and subpart J of part 2 of this chapter.

[69 FR 46446, Aug. 3, 2004]

§ 95.645 Control accessibility.

(a) No control, switch or other type of adjustment which, when manipulated, can result in a violation of the rules shall be accessible from the transmitter operating panel or from exterior of the transmitter enclosure.

(b) An R/C transmitter which incorporates plug-in frequency determining modules which are changed by the user must be certificated with the modules. Each module must contain all of the frequency determining circuitry including the oscillator. Plug-in crystals are not considered modules and must not be accessible to the user.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996; 63 FR 36610, July 7, 1998]

§ 95.647 FRS unit and R/C transmitter antennas.

The antenna of each FRS unit, and the antenna of each R/C station transmitting in the 72–76 MHz band, must be an integral part of the transmitter. The antenna must have no gain (as compared to a half-wave dipole) and must be vertically polarized.

[61 FR 28770, June 6, 1996. Redesignated at 61 FR 46567, Sept. 4, 1996]

§ 95.649 Power capability.

No CB, R/C, LPRS, FRS, MedRadio, MURS, or WMTS unit shall incorporate provisions for increasing its transmitter power to any level in excess of the limits specified in § 95.639.

[74 FR 22708, May 14, 2009]

§ 95.651 Crystal control required.

All transmitters used in the Personal Radio Services must be crystal controlled, except an R/C station that

transmits in the 26–27 MHz frequency band, a FRS unit, a LPRS unit, a MURS unit, a MedRadio transmitter, or a WMTS unit.

[74 FR 22708, May 14, 2009]

§ 95.653 Instructions and warnings.

(a) A user's instruction manual must be supplied with each transmitter marketed, and one copy (a draft or preliminary copy is acceptable provided a final copy is provided when completed) must be forwarded to the FCC with each request for certification.

(b) The instruction manual must contain all information necessary for the proper installation and operation of the transmitter including:

(1) Instructions concerning all controls, adjustments and switches that may be operated or adjusted without resulting in a violation of the rules.

(2) Warnings concerning any adjustment that could result in a violation of the rules or that is recommended to be performed by or under the immediate supervision and responsibility of a person certified as technically qualified to perform transmitter maintenance and repair duties in the private land mobile services and fixed services by an organization or committee representative of users of those services.

(3) Warnings concerning the replacement of any transmitter component (crystal, semiconductor, etc.) that could result in a violation of the rules.

(4) For a CMRS transmitter, warnings concerning licensing requirements and information concerning license application procedures.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996; 63 FR 36610, July 7, 1998]

§ 95.655 Frequency capability.

(a) No transmitter will be certificated for use in the CB service if it is equipped with a frequency capability not listed in § 95.625, and no transmitter will be certificated for use in the GMRS if it is equipped with a frequency capability not listed in § 95.621, unless such transmitter is also certificated for use in another radio service for which the frequency is authorized and for which certification is also required. (Transmitters with frequency capability for the Amateur Radio Services and Military Affiliate Radio System will not be certificated.)

(b) All frequency determining circuitry (including crystals) and programming controls in each CB transmitter and in each GMRS transmitter must be internal to the transmitter and must not be accessible from the exterior of the transmitter operating panel or from the exterior of the transmitter enclosure.

(c) No add-on device, whether internal or external, the function of which is to extend the transmitting frequency capability of a CB transmitter beyond its original capability, shall be manufactured, sold or attached to any CB station transmitter.

(d) No transmitter will be certificated for use in MURS if it is equipped with a frequency capability not listed in § 95.632.

[53 FR 47718, Nov. 25, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996 and amended at 63 FR 36611, July 7, 1998; 67 FR 63290, Oct. 11, 2002; 69 FR 32886, June 14, 2004]

Additional Certification Requirements for CB Transmitters

§ 95.665 [Reserved]

§ 95.667 CB transmitter power.

The dissipation rating of all the semiconductors or electron tubes which supply RF power to the antenna terminals of each CB transmitter must not exceed 10 W. For semiconductors, the dissipation rating is the greater of the collector or device dissipation value established by the manufacturer of the semiconductor. These values may be temperature de-rated by no more than 50 °C. For an electron tube, the dissipation rating is the Intermittent Commercial and Amateur Service plate dissipation value established by the manufacturer of the electron tube.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996]

§ 95.669 External controls.

(a) Only the following external transmitter controls, connections or devices

will normally be permitted in a CB transmitter:

(1) Primary power connection. (Circuitry or devices such as rectifiers, transformers, or inverters which provide the nominal rated transmitter primary supply voltage may be used without voiding the transmitter certification.)

(2) Microphone connection.

(3) Antenna terminals.

(4) Audio frequency power amplifier output connector and selector switch.

(5) On-off switch for primary power to transmitter. This switch may be combined with receiver controls such as the receiver on-off switch and volume control.

(6) Upper/lower sideband selector switch (for a transmitter that transmits emission type H3E, J3E or R3E).

(7) Carrier level selector control (for a transmitter that transmits emission type H3E, J3E or R3E.) This control may be combined with the sideband selector switch.

(8) Channel frequency selector switch.

(9) Transmit/receive selector switch.

(10) Meter(s) and selector switch(es) for monitoring transmitter performance.

(11) Pilot lamp(s) or meter(s) to indicate the presence of RF output power or that the transmitter control circuits are activated to transmit.

(b) The FCC may authorize additional controls, connections or devices after considering the functions to be performed by such additions.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996; 63 FR 36611, July 7, 1998]

§ 95.671 Serial number.

The serial number of each CB transmitter must be engraved on the transmitter chassis.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996]

§ 95.673 Copy of rules.

A copy of part 95, subpart D, of the FCC Rules, current at the time of packing of the transmitter, must be furnished with each CB transmitter marketed.

[53 FR 36789, Sept. 22, 1988. Redesignated at 61 FR 28769, June 6, 1996, and further redesignated at 61 FR 46567, Sept. 4, 1996]

APPENDIX 1 TO SUBPART E OF PART 95—GLOSSARY OF TERMS

The definitions used in this subpart E are:

Authorized bandwidth. Maximum permissible bandwidth of a transmission.

Carrier power. Average TP during one unmodulated RF cycle.

CB. Citizens Band Radio Service.

CB transmitter. A transmitter that operates or is intended to operate at a station authorized in the CB.

Channel frequencies. Reference frequencies from which the carrier frequency, suppressed or otherwise, may not deviate by more than the specified frequency tolerance.

Crystal. Quartz piezo-electric element.

Crystal controlled. Use of a crystal to establish the transmitted frequency.

dB. Decibels.

EIRP. Effective Isotropic Radiated Power. Antenna input power times gain for free-space or in-tissue measurement configurations required by MedRadio, expressed in watts, where the gain is referenced to an isotropic radiator.

FCC. Federal Communications Commission.

Filtering. Refers to the requirement in § 95.633(b).

FRS. Family Radio Service.

GMRS. General Mobile Radio Service.

GMRS transmitter. A transmitter that operates or is intended to operate at a station authorized in the GMRS.

Harmful interference. Any transmission, radiation or induction that endangers the functioning of a radionavigation or other safety service or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with applicable laws, treaties and regulations.

Mean power. TP averaged over at least 30 cycles of the lowest modulating frequency, typically 0.1 seconds at maximum power.

Medical Body Area Network (MBAN). An MBAN is a low power network consisting of a MedRadio programmer/control transmitter and multiple medical body-worn devices all of which transmit or receive non-voice data or related device control commands for the purpose of measuring and recording physiological parameters and other patient information or performing diagnostic or therapeutic functions via radiated bi- or uni-directional electromagnetic signals.

Medical body-worn device. Apparatus that is placed on or in close proximity to the human body (e.g., within a few centimeters) for the

purpose of performing diagnostic or therapeutic functions.

Medical body-worn transmitter. A MedRadio transmitter intended to be placed on or in close proximity to the human body (e.g., within a few centimeters) used to facilitate communications with other medical communications devices for purposes of delivering medical therapy to a patient or collecting medical diagnostic information from a patient.

Medical implant device. Apparatus that is placed inside the human body for the purpose of performing diagnostic or therapeutic functions.

Medical implant event. An occurrence or the lack of an occurrence recognized by a medical implant device, or a duly authorized health care professional, that requires the transmission of data from a medical implant transmitter in order to protect the safety or well-being of the person in whom the medical implant transmitter has been implanted.

Medical implant transmitter. A MedRadio transmitter in which both the antenna and transmitter device are designed to operate within a human body for the purpose of facilitating communications from a medical implant device.

Medical Micropower Network (MMN). An ultra-low power wideband network consisting of a MedRadio programmer/control transmitter and medical implant transmitters, all of which transmit or receive non-voice data or related device control commands for the purpose of facilitating functional electric stimulation, a technique using electric currents to activate and monitor nerves and muscles.

MedRadio programmer/control transmitter. A MedRadio transmitter that operates or is designed to operate outside of a human body for the purpose of communicating with a receiver, or for triggering a transmitter, connected to a medical implant device or to a medical body-worn device used in the MedRadio Service; and which also typically includes a frequency monitoring system that initiates a MedRadio communications session.

MedRadio Service. Medical Device Radiocommunication Service.

MedRadio transmitter. A transmitter authorized to operate in the MedRadio service.

MURS. Multi-Use Radio Service.

Peak envelope power. TP averaged during one RF cycle at the highest crest of the modulation envelope.

R/C. Radio Control Radio Service.

R/C transmitter. A transmitter that operates or is intended to operate at a station authorized in the R/C.

RF. Radio frequency.

TP. RF transmitter power expressed in W, either mean or peak envelope, as measured at the transmitter output antenna terminals.

Transmitter. Apparatus that converts electrical energy received from a source into RF energy capable of being radiated.

W. Watts.

[65 FR 60878, Oct. 13, 2000, as amended at 74 FR 22708, May 14, 2009; 77 FR 4269, Jan. 27, 2012; 77 FR 55733, Sept. 11, 2012]

Subpart F—218–219 MHz Service

GENERAL PROVISIONS

SOURCE: 57 FR 8275, Mar. 9, 1992, unless otherwise noted.

§ 95.801 Scope.

This subpart sets out the regulations governing the licensing and operation of a 218–219 MHz system. This subpart supplements part 1, subpart F of this chapter, which establishes the requirements and conditions under which commercial and private radio stations may be licensed and used in the Wireless Telecommunications Services. The provisions of this subpart contain additional pertinent information for current and prospective licensees specific to the services governed by this part 95.

[64 FR 59659, Nov. 3, 1999]

§ 95.803 218–219MHz Service description.

(a) The 218–219 MHz Service is authorized for system licensees to provide communication service to subscribers in a specific service area.

(b) The components of each 218–219 MHz Service system are its administrative apparatus, its response transmitter units (RTUs), and one or more cell transmitter stations (CTSs). RTUs may be used in any location within the service area. CTSs provide service from a fixed point, and certain CTSs must be individually licensed as part of a 218–219 MHz Service system. See § 95.811.

(c) Each 218–219 MHz Service system service area is one of the cellular system service areas as defined by the Commission, unless modified pursuant to § 95.823.

[66 FR 9218, Apr. 9, 2001]

§ 95.805 Permissible communications.

A 218–219 MHz Service system may provide any fixed or mobile communications service to subscribers within

its service area on its assigned spectrum, consistent with the Commission's rules and the regulatory status of the system to provide services on a common carrier or private basis.

[64 FR 59660, Nov. 3, 1999]

§ 95.807 Requesting regulatory status.

(a) Authorizations for systems in the 218–219 MHz Service will be granted to provide services on a common carrier basis or a private (non-common carrier and/or private internal-use) basis.

(1) *Initial applications.* An applicant will specify on FCC Form 601 if it is requesting authorizations to provide services on a common carrier, non-common carrier or private internal-use basis, of a combination thereof.

(2) *Amendment of pending applications.* Any pending application may be amended to:

(i) Change the carrier status requested; or

(ii) Add to the pending request in order to obtain both common carrier and private status in a single license.

(3) *Modification of license.* A licensee may modify a license to:

(i) Change the carrier status authorized; or

(ii) Add to the status authorized in order to obtain both common carrier and private status in a single license. Applications to change, or add to, carrier status in a license must be submitted on FCC Form 601 in accordance with § 1.1102 of this chapter.

(4) *Pre-existing licenses.* Licenses granted before April 9, 2001. are authorized to provide services on a private (non-common carrier) basis. Licensees may modify this initial status pursuant to paragraph (a)(3) of this section.

(b) An applicant or licensee may submit a petition at any time requesting clarification of the regulatory status required to provide a specific communications service.

[64 FR 59660, Nov. 3, 1999, as amended at 66 FR 9219, Feb. 7, 2001]

SYSTEM LICENSE REQUIREMENTS

§ 95.811 License requirements.

(a) Each 218–219 MHz Service system must be licensed in accordance with part 1, subpart F of this chapter.

(b) Each CTS where the antenna does not exceed 6.1 meters (20 feet) above ground or an existing structure (other than an antenna structure) and is outside the vicinity of certain receiving locations (see § 1.924 of this chapter) is authorized under the 218–219 MHz System license. All other CTS must be individually licensed.

(c) All CTSs not meeting the licensing criteria under paragraph (b) of this section are authorized under the 218–219 MHz Service system license.

(d) Each component RTU in a 218–219 MHz Service system is authorized under the system license or if associated with an individually licensed CTS, under that CTS license.

(e) Each CTS (regardless of whether it is individually licensed) and each RTU must be in compliance with the Commission's environmental rules (see part 1, subpart I of this chapter) and the Commission's rules pertaining to the construction, marking and lighting of antenna structures (see part 17 of this chapter).

[57 FR 8275, Mar. 9, 1992, as amended at 57 FR 36373, Aug. 13, 1992; 63 FR 68977, Dec. 14, 1998; 64 FR 59660, Nov. 3, 1999; 66 FR 9219, Feb. 7, 2001]

§ 95.812 License term.

(a) The term of each 218–219 MHz service system license is ten years from the date of original grant or renewal.

(b) Licenses for individually licensed CTSs will be issued for a period running concurrently with the license of the associated 218–219 MHz Service system with which it is licensed.

[64 FR 59660, Nov. 3, 1999, as amended at 66 FR 9219, Feb. 7, 2001]

§ 95.813 Eligibility.

(a) An entity is eligible to hold a 218–219 MHz Service system license and its associated individual CTS licenses if:

(1) The entity is an individual who is not a representative of a foreign government; or

(2) The entity is a partnership and no partner is a representative of a foreign government; or

(3) The entity is a corporation organized under the laws of the United States of America; or

(4) The entity is a trust and no beneficiary is a representative of a foreign government.

(b) An entity that loses its 218–219 MHz Service authorization due to failure to meet the construction requirements specified in § 95.833 of this part may not apply for a 218–219 MHz Service system license for three years from the date the Commission takes final action affirming that the 218–219 MHz Service license has been canceled.

[57 FR 8275, Mar. 9, 1992, as amended at 58 FR 25952, Apr. 29, 1993; 64 FR 59660, Nov. 3, 1999]

§ 95.815 License application.

(a) In addition to the requirements of part 1, subpart F of this chapter, each application for a 218–219 MHz Service system license must include a plan analyzing the co- and adjacent channel interference potential of the proposed system, identifying methods being used to minimize this interference, and showing how the proposed system will meet the service requirements set forth in § 95.831 of this part. This plan must be updated to reflect changes to the 218–219 MHz Service system design or construction.

(b) In addition to the requirements of part 1, subpart F of this chapter, each request by a 218–219 MHz Service system licensee to add, delete, or modify technical information of an individually licensed CTS (*see* § 95.811(b) of this part) must include a description of the system after the proposed addition, deletion, or modifications, including the population in the service area, the number of component CTSs, and an explanation of how the system will satisfy the service requirements specified in § 95.831 of this part.

[63 FR 68977, Dec. 14, 1998, as amended at 64 FR 59660, Nov. 3, 1999]

§ 95.816 Competitive bidding proceedings.

(a) Mutually exclusive initial applications for 218–219 MHz Service licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this part.

(b) *Installment payments*. Eligible Licensees that elect resumption pursuant to Amendment of part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218–219 MHz Service, *Report and Order and Memorandum Opinion and Order*, FCC 99–239 (released September 10, 1999) may continue to participate in the installment payment program. Eligible Licensees are those that were current in installment payments (*i.e.* less than ninety days delinquent) as of March 16, 1998, or those that had properly filed grace period requests under the former installment payment rules. All unpaid interest from grant date through election date will be capitalized into the principal as of Election Day creating a new principal amount. Installment payments must be made on a quarterly basis. Installment payments will be calculated based on new principal amount as of Election Day and will fully amortize over the remaining term of the license. The interest rate will equal the rate for five-year U.S. Treasury obligations at the grant date.

(c) *Eligibility for small business provisions*. (1) A small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $15 million for the preceding three years.

(2) A very small business is an entity that, together with its affiliates and controlling interests, has average gross revenues not to exceed $3 million for the preceding three years.

(d) *Bidding credits*. A winning bidder that qualifies as a small business, as defined in this subsection, or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a very small business, as defined in this section, or a consortium of very small businesses may use the bidding credit specified in accordance with § 1.2110(f)(2)(i) of this chapter.

(e) Winning bidders in Auction No. 2, which took place on July 28–29, 1994, that, at the time of auction, met the qualifications under the Commission's rules then in effect, for small business status will receive a twenty-five percent bidding credit pursuant to Amendment of part 95 of the Commission's

Rules to Provide Regulatory Flexibility in the 218–219 MHz Service, Report and Order and Memorandum Opinion and Order, FCC 99–239 (released September 10, 1999).

[64 FR 59660, Nov. 3, 1999, as amended at 66 FR 9219, Feb. 7, 2001; 67 FR 45378, July 9, 2002; 68 FR 43001, July 21, 2003]

§ 95.819 License transferability.

(a) A 218–219 MHz Service system license, together with all of its component CTS licenses, may be transferred, assigned, sold, or given away only in accordance with the provisions and procedures set forth in § 1.948 of this chapter. For licenses acquired through competitive bidding procedures (including licenses obtained in cases of no mutual exclusivity), designated entities must comply with §§ 1.2110 and 1.2111 of this chapter (see § 1.948(a)(3) of this chapter).

(b) If the transfer, assignment, sale, or gift of a license is approved, the new licensee is held to the construction requirements set forth in § 95.833.

[66 FR 9219, Feb. 7, 2001]

§ 95.823 Geographic partitioning and spectrum disaggregation.

(a) *Eligibility*. Parties seeking Commission approval of geographic partitioning or spectrum disaggregation of 218–219 MHz Service system licenses shall request an authorization for partial assignment of license pursuant to § 1.948 of this chapter.

(b) *Technical standards*—(1) *Partitioning*. In the case of partitioning, requests for authorization of partial assignment of a license must include, as attachments, a description of the partitioned service area and a calculation of the population of the partitioned service area and the licensed geographic service area. The partitioned service area shall be defined by coordinate points at every 3 seconds along the partitioned service area unless an FCC-recognized service area (*i.e.* Economic Areas) is utilized or county lines are followed. The geographic coordinates must be specified in degrees, minutes, and seconds, to the nearest second of latitude and longitude, and must be based upon the 1983 North American Datum (NAD83). In the case where an FCC-recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(2) *Disaggregation*. Spectrum maybe disaggregated in any amount.

(3) *Combined partitioning and disaggregation*. The Commission will consider requests for partial assignments of licenses that propose combinations of partitioning and disaggregation.

(c) *Provisions applicable to designated entities*—(1) *Parties not qualified for installment payment plans*. (i) When a winning bidder (partitionor or disaggregator) that elected to pay for its license through an installment payment plan partitions its license or disaggregates spectrum to another party (partitionee or disaggregatee) that would not qualify for an installment payment plan, or elects not to pay for its share of the license through installment payments, the outstanding principal balance owed by the partitionor or disaggregator shall be apportioned according to § 1.2111(e)(3) of this chapter. The partitionor or disaggregator is responsible for accrued and unpaid interest through and including the consummation date.

(ii) The partitionee or disaggregatee shall, as a condition of the approval of the partial assignment application, pay its entire *pro rata* amount of the outstanding principal balance on or before the consummation date. Failure to meet this condition will result in cancellation of the grant of the partial assignment application.

(iii) The partitionor or disaggregator shall be permitted to continue to pay its pro rata share of the outstanding balance and, if applicable, shall receive loan documents evidencing the partitioning and disaggregation. The original interest rate, established pursuant to § 1.2110(g)(3)(i) of this chapter at the time of the grant of the initial license in the market, shall continue to be applied to the partitionor's or disaggregator's portion of the remaining government obligation.

(iv) A default on the partitionor's or disaggregator's payment obligation will affect only the partitionor's or disaggregator's portion of the market.

(2) Parties qualified for installment payment plans.

(i) Where both parties to a partitioning or disaggregation agreement qualify for installment payments, the partitionee or disaggregatee will be permitted to make installment payments on its portion of the remaining government obligation.

(ii) Each party may be required, as a condition to approval of the partial assignment application, to execute loan documents agreeing to pay its *pro rata* portion of the outstanding principal balance due, as apportioned according to § 1.2111(e)(3) of this chapter, based upon the installment payment terms for which it qualifies under the rules. Failure by either party to meet this condition will result in the automatic cancellation of the grant of the partial assignment application. The interest rate, established pursuant to § 1.2110(f)(3)(i) of this chapter at the time of the grant of the initial license in the market, shall continue to be applied to both parties' portion of the balance due. Each party will receive a license for its portion of the partitioned market.

(iii) A default on an obligation will affect only that portion of the market area held by the defaulting party.

(d) *Construction requirements*—(1) *Partitioning*. Partial assignors and assignees for license partitioning have two options to meet construction requirements. Under the first option, the partitionor and partitionee would each certify that they will independently satisfy the applicable construction requirements set forth in § 95.833 of this part for their respective partitioned areas. If either licensee failed to meet its requirement in § 95.833 of this part, only the non-performing licensee's renewal application would be subject to dismissal. Under the second option, the partitionor certifies that it has met or will meet the requirement in § 95.833 of this part for the entire market. If the partitionor fails to meet the requirement in § 95.833 of this part, however, only its renewal application would be subject to forfeiture at renewal.

(2) *Disaggregation*. Partial assignors and assignees for license disaggregation have two options to meet construction requirements. Under the first option, the disaggregator and disaggregatee would certify that they each will share responsibility for meeting the applicable construction requirements set forth in § 95.833 of this part for the geographic service area. If parties choose this option and either party fails to do so, both licenses would be subject to forfeiture at renewal. The second option would allow the parties to agree that either the disaggregator or the disaggregatee would be responsible for meeting the requirement in § 95.833 of this part for the geographic service area. If parties choose this option, and the party responsible for meeting the construction requirement fails to do so, only the license of the non-performing party would be subject to forfeiture at renewal.

(3) All applications requesting partial assignments of license for partitioning or disaggregation must include the above-referenced certification as to which of the construction options is selected.

(4) Responsible parties must submit supporting documents showing compliance with the respective construction requirements within the appropriate construction benchmarks set forth in § 95.833 of this part.

[64 FR 59662, Nov. 3, 1999, as amended at 67 FR 46378, July 9, 2002]

SYSTEM REQUIREMENTS

§ 95.831 Service requirements.

Subject to the initial construction requirements of § 95.833 of this subpart, each 218–219 MHz Service system license must demonstrate that it provides substantial service within the service area. Substantial service is defined as a service that is sound, favorable, and substantially above a level of service which might minimally warrant renewal.

[64 FR 59662, Nov. 3, 1999]

§ 95.833 Construction requirements.

(a) Each 218–219 MHz Service licensee must make a showing of ''substantial service'' within ten years of the license grant. A ''substantial service'' assessment will be made at renewal pursuant to the provisions and procedures contained in § 1.949 of this chapter.

(b) Each 218–219 MHz Service licensee must file a report to be submitted to inform the Commission of the service status of its system. The report must be labeled as an exhibit to the renewal application. At minimum, the report must include:

(1) A description of its current service in terms of geographic coverage and population served;

(2) An explanation of its record of expansion, including a timetable of new construction to meet changes in demand for service;

(3) A description of its investments in its 218–219 MHz Service systems;

(4) A list, including addresses, of all component CTSs constructed; and

(5) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and a list of any pending proceedings that relate to any matter described in this paragraph.

(c) Failure to demonstrate that substantial service is being provided in the service area will result in forfeiture of the license, and will result in the licensee's ineligibility to apply for 218–219 MHz Service licenses for three years from the date the Commission takes final action affirming that the 218–219 MHz Service license has been canceled pursuant to § 95.813 of this part.

[64 FR 59662, Nov. 3, 1999]

§ 95.835 Station identification.

No RTU or CTS is required to transmit a station identification announcement.

§ 95.837 Station inspection.

Upon request by an authorized Commission representative, the 218–219 MHz Service system licensee must make any component CTS available for inspection.

TECHNICAL STANDARDS

§ 95.851 Certification.

Each CTS and RTU transmitter must be certificated for use in the 218–219 MHz Service in accordance with subpart J of part 2 of this chapter.

[63 FR 36611, July 7, 1998]

§ 95.853 Frequency segments.

There are two frequency segments available for assignment to the 218–219 MHz Service in each service area. Frequency segment A is 218.000–218.500 MHz. Frequency segment B is 218.501–219.000 MHz.

[64 FR 59663, Nov. 3, 1999]

§ 95.855 Transmitter effective radiated power limitation.

The effective radiated power (ERP) of each CTS and RTU shall be limited to the minimum necessary for successful communications. No CTS or fixed RTU may transmit with an ERP exceeding 20 watts. No mobile RTU may transmit with an ERP exceeding 4 watts.

[64 FR 59663, Nov. 3, 1999]

§ 95.857 Emission standards.

(a) All transmissions by each CTS and by each RTU shall use an emission type that complies with the following standard for unnecessary radiation.

(b) All spurious and out-of-band emissions shall be attenuated:

(1) Zero dB on any frequency within the authorized frequency segment.

(2) At least 28 dB on any frequency removed from the midpoint of the assigned frequency segment by more than 250 kHz up to and including 750 kHz;

(3) At least 35 dB on any frequency removed from the midpoint of the assigned frequency segment by more than 750 kHz up to and including 1250 kHz;

(4) At least 43 plus 10 log (base 10) (mean power in watts) dB on any frequency removed from the midpoint of the assigned frequency segment by more than 1250 kHz.

(c) When testing for certification, all measurements of unnecessary radiation are performed using a carrier frequency as close to the edge of the authorized frequency segment as the transmitter is designed to be capable of operating.

(d) The resolution bandwidth of the instrumentation used to measure the emission power shall be 100 Hz for measuring emissions up to and including 250 kHz from the edge of the authorized frequency segment, and 10 kHz for measuring emissions more than 250

kHz from the edge of the authorized frequency segment. If a video filter is used, its bandwidth shall not be less than the resolution bandwidth. The power level of the highest emission within the frequency segment, to which the attenuation is referenced, shall be remeasured for each change in resolution bandwidth.

[57 FR 8275, Mar. 9, 1992, as amended at 63 FR 36611, July 7, 1998]

§ 95.859 Antennas.

(a) The overall height from ground to topmost tip of the CTS antenna shall not exceed the height necessary to assure adequate service. Certain CTS antennas must be individually licensed to the 218–219 MHz System licensee (see § 95.811(b) of this part) and the antenna structures of which they are a part must be registered with the Commission (*see* part 17 of this chapter).

(b) [Reserved]

(c) The RTU may be connected to an external antenna not more than 6.1 m (20 feet) above ground or above an existing man-made structure (other than an antenna structure). Connectors that are used to connect RTUs to an external antenna shall not be of the types generally known as ''F-type'' or ''BNC type.'' Use of an external antenna is subject to § 95.861.

[57 FR 36373, Aug. 13, 1992, as amended at 64 FR 59663, Nov. 3, 1999]

§ 95.861 Interference.

(a) When a 218–219 MHz Service system suffers harmful interference within its service area or causes harmful interference to another 218–219 MHz Service system, the licensees of both systems must cooperate and resolve the problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions including, but not limited to, specifying the transmitter power, antenna height or area, duty cycle, or hours of operation for the stations concerned.

(b) The use of any frequency segment (or portion thereof) at a given geographical location may be denied when, in the judgment of the Commission, its use in that location is not in the public interest; the use of a frequency segment (or portion thereof) specified for the 218–219 MHz Service system may be restricted as to specified geographical areas, maximum power, or other operating conditions.

(c) A 218–219 MHz Service licensee must provide a copy of the plan required by § 95.815 (a) of this part to every TV Channel 13 station whose Grade B predicted contour overlaps the licensed service area for the 218–219 MHz Service system. The 218–219 MHz Service licensee must send the plan to the TV Channel 13 licensee(s) within 10 days from the date the 218–219 MHz Service submits the plan to the Commission, and the 218–219 MHz Service licensee must send updates to this plan to the TV Channel 13 licensee(s) within 10 days from the date that such updates are filed with the Commission pursuant to § 95.815.

(d) Each 218–219 MHz Service system licensee must provide upon request, and install free of charge, an interference reduction device to any household within a TV Channel 13 station Grade B predicted contour that experiences interference due to a component CTS or RTU.

(e) Each 218–219 MHz Service system licensee must investigate and eliminate harmful interference to television broadcasting and reception, from its component CTSs and RTSs, within 30 days of the time it is notified in writing, by either an affected television station, an affected viewer, or the Commission, of an interference complaint. Should the licensee fail to eliminate the interference within the 30-day period, the CTS(s) or RTU(s) causing the problem(s) must discontinue operation.

(f) The boundary of the 218–219 MHz Service system, as defined in its authorization, is the limit of interference protection for that 218–219 MHz Service system.

[64 FR 59663, Nov. 3, 1999, as amended at 66 FR 9219, Feb. 7, 2001]

Subpart G—Low Power Radio Service (LPRS)

SOURCE: 61 FR 46569, Sept. 4, 1996, unless otherwise noted.

GENERAL PROVISIONS

§ 95.1001 Eligibility.

An entity is authorized by rule to operate a LPRS transmitter and is not required to be individually licensed by the FCC if it is not a representative of a foreign government and if it uses the transmitter only in accordance with § 95.1009. Each entity operating a LPRS transmitter for AMTS purposes must hold an AMTS license under part 80 of this chapter.

§ 95.1003 Authorized locations.

LPRS operation is authorized:

(a) Anywhere CB station operation is permitted under § 95.405(a); and

(b) Aboard any vessel or aircraft of the United States, with the permission of the captain, while the vessel or aircraft is either travelling domestically or in international waters or airspace.

(c) Anyone intending to operate an LPRS transmitter on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra in a manner that could pose an interference threat to the Arecibo Observatory shall notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the location of the unit. Operators may wish to consult interference guidelines, which will be provided by Cornell University. Operators who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory shall be made 45 days prior to commencing operation of the transmitter. The notification shall state the geographical coordinates of the unit.

(2) After receipt of such notifications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections. The operator will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory. If the Commission determines that an operator has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, the unit may be allowed to operate.

[61 FR 46569, Sept. 4, 1996, as amended at 62 FR 55536, Oct. 27, 1997; 70 CFR 31374, June 1, 2005]

§ 95.1005 Station identification.

An LPRS station is not required to transmit a station identification announcement.

§ 95.1007 Station inspection.

All LPRS system apparatus must be made available for inspection upon request by an authorized FCC representative.

§ 95.1009 Permissible communications.

LPRS stations may transmit voice, data, or tracking signals as permitted in this section. Two-way voice communications are prohibited.

(a) Auditory assistance communications (including but not limited to applications such as assistive listening devices, audio description for the blind, and simultaneous language translation) for:

(1) Persons with disabilities. In the context of the LPRS, the term ''disability'' has the meaning given to it by section 3(2)(A) of the Americans with Disabilities Act of 1990 (42 U.S.C. 12102(2)(A)), *i.e,* persons with a physical or mental impairment that substantially limits one or more of the major life activities of such individuals;

(2) Persons who require language translation; or

(3) Persons who may otherwise benefit from auditory assistance communications in educational settings.

(b) Health care related communications for the ill.

(c) Law enforcement tracking signals (for homing or interrogation) including the tracking of persons or stolen goods under authority or agreement with a law enforcement agency (federal, state, or local) having jurisdiction in the area where the transmitters are placed.

(d) AMTS point-to-point network control communications.

§ 95.1011 Channel use policy.

(a) The channels authorized to LPRS systems by this part are available on a

shared basis only and will not be assigned for the exclusive use of any entity.

(b) Those using LPRS transmitters must cooperate in the selection and use of channels in order to reduce interference and make the most effective use of the authorized facilities. Channels must be selected in an effort to avoid interference to other LPRS transmissions.

(c) Operation is subject to the conditions that no harmful interference is caused to the United States Navy's SPASUR radar system (216.88–217.08 MHz) or to TV reception within the Grade B contour of any TV channel 13 station or within the 68 dBu predicted contour of any low power TV or TV translator station operating on channel 13.

§95.1013 Antennas.

(a) The maximum allowable ERP for a station in the LPRS other than an AMTS station is 100 mW. The maximum allowable ERP for an AMTS station in the LPRS is 1 W, so long as emissions are attenuated, in accordance with §80.211 of this chapter, at the band edges.

(b) AMTS stations must employ directional antennas.

(c) Antennas used with LPRS units must comply with the following:

(1) For LPRS units operating entirely within an enclosed structure, e.g., a building, there is no limit on antenna height;

(2) For LPRS units not operating entirely within an enclosed structure, the tip of the antenna shall not exceed 30.5 meters (100 feet) above ground. In cases where harmful interference occurs the FCC may require that the antenna height be reduced; and

(3) The height limitation in paragraph (c)(2) of this section does not apply to LPRS units in which the antenna is an integral part of the unit.

[61 FR 46569, Sept. 4, 1996, as amended at 65 FR 77827, Dec. 13, 2000]

§95.1015 Disclosure policies.

(a) Manufacturers of LPRS transmitters used for auditory assistance, health care assistance, and law enforcement tracking purposes must include with each transmitting device the following statement: ''This transmitter is authorized by rule under the Low Power Radio Service (47 CFR part 95) and must not cause harmful interference to TV reception or United States Navy SPASUR installations. You do not need an FCC license to operate this transmitter. This transmitter may only be used to provide: auditory assistance to persons with disabilities, persons who require language translation, or persons in educational settings; health care services to the ill; law enforcement tracking services under agreement with a law enforcement agency; or automated maritime telecommunications system (AMTS) network control communications. Two-way voice communications and all other types of uses not mentioned above are expressly prohibited.''

(b) Prior to operating a LPRS transmitter for AMTS purposes, an AMTS licensee must notify, in writing, each television station that may be affected by such operations, as defined in §80.215(h) of this chapter. The notification provided with the station's license application is sufficient to satisfy this requirement if no new television stations would be affected.

§95.1017 Labeling requirements.

(a) Each LPRS transmitting device shall bear the following statement in a conspicuous location on the device: ''This device may not interfere with TV reception or Federal Government radar.''

(b) Where an LPRS device is constructed in two or more sections connected by wires and marketed together, the statement specified in this section is required to be affixed only to the main control unit.

(c) When the LPRS device is so small or for such use that it is not practicable to place the statement specified in the section on it, the statement must be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.

[61 FR 46569, Sept. 4, 1996, as amended at 67 FR 6193, Feb. 11, 2002]

§ 95.1019 Marketing limitations.

Transmitters intended for operation in the LPRS may be marketed and sold only for those uses described in § 95.1009.

[64 FR 69933, Dec. 15, 1999]

Subpart H—Wireless Medical Telemetry Service (WMTS)

SOURCE: 65 FR 44008, July 17, 2000, unless otherwise noted.

GENERAL PROVISIONS

§ 95.1101 Scope.

This subpart sets out the regulations governing the operation of Wireless Medical Telemetry Devices in the 608–614 MHz, 1395–1400 MHz, and 1427–1432 MHz frequency bands. *See* § 95.630 regarding permissible frequencies.

[75 FR 19285, Apr. 14, 2010]

§ 95.1103 Definitions.

(a) *Authorized health care provider*. A physician or other individual authorized under state or federal law to provide health care services, or any other health care facility operated by or employing individuals authorized under state or federal law to provide health care services, or any trained technician operating under the supervision and control of an individual or health care facility authorized under state or federal law to provide health care services.

(b) *Health care facility*. A health care facility includes hospitals and other establishments that offer services, facilities and beds for use beyond a 24 hour period in rendering medical treatment, and institutions and organizations regularly engaged in providing medical services through clinics, public health facilities, and similar establishments, including government entities and agencies such as Veterans Administration hospitals; except the term health care facility does not include an ambulance or other moving vehicle.

(c) *Wireless medical telemetry*. The measurement and recording of physiological parameters and other patient-related information via radiated bi-or unidirectional electromagnetic signals in the 608–614, 1395–1400 MHz and 1427–1432 MHz frequency bands.

[65 FR 44008, July 17, 2000, as amended at 67 FR 6194, Feb. 11, 2002; 75 FR 19285, Apr. 14, 2010]

§ 95.1105 Eligibility.

Authorized health care providers are authorized by rule to operate transmitters in the Wireless Medical Telemetry Service without an individual license issued by the Commission provided the coordination requirements in § 95.1111 have been met. Manufacturers of wireless medical telemetry devices and their representatives are authorized to operated wireless medical telemetry transmitters in this service solely for the purpose of demonstrating such equipment to, or installing and maintaining such equipment for, duly authorized health care providers. No entity that is a foreign government or which is active in the capacity as a representative of a foreign government is eligible to operate a WMTS transmitter.

§ 95.1107 Authorized locations.

The operation of a wireless medical telemetry transmitter under this part is authorized anywhere within a health care facility provided the facility is located anywhere a CB station operation is permitted under § 95.405. This authority does not extend to mobile vehicles, such as ambulances, even if those vehicles are associated with a health care facility.

§ 95.1109 Equipment authorization requirement.

(a) Wireless medical telemetry devices operating under this part must be authorized under the certification procedure prior to marketing or use in accordance with the provisions of part 2, subpart J of this chapter.

(b) Each device shall be labeled with the following statement:

Operation of this equipment requires the prior coordination with a frequency coordinator designated by the FCC for the Wireless Medical Telemetry Service.

§ 95.1111 Frequency coordination.

(a) Prior to operation, authorized health care providers who desire to use

wireless medical telemetry devices must register all devices with a designated frequency coordinator. Except as specified in §95.1105, operation of WMTS equipment prior to registration is not authorized under this part. The registration must include the following information:

(1) Specific frequencies or frequency range(s) used;

(2) Modulation scheme used (including occupied bandwidth);

(3) Effective radiated power;

(4) Number of transmitters in use at the health care facility as of the date of registration including manufacturer name(s) and model numbers);

(5) Legal name of the authorized health care provider;

(6) Location of transmitter (coordinates, street address, building);

(7) Point of contact for the authorized health care provider (name, title, office, phone number, fax number, e-mail address).

(b) An authorized health care provider shall notify the frequency coordinator whenever a medical telemetry device is permanently taken out of service, unless the device is replaced with another transmitter utilizing the same technical characteristics as those reported on the effective registration. An authorized health care provider shall maintain the information contained in each registration current in all material respects, and shall notify the frequency coordinator when any change is made in the location or operating parameters previously reported which is material.

(c) As of April 14, 2010, no registrations may be accepted for frequencies where WMTS does not have primary status. Previously registered secondary facilities may continue to operate as registered.

[65 FR 44008, July 17, 2000, as amended at 75 FR 19285, Apr. 14, 2010]

§95.1113 Frequency coordinator.

(a) The Commission will designate a frequency coordinator(s) to manage the usage of the frequency bands for the operation of medical telemetry devices.

(b) The frequency coordinator shall

(1) Review and process coordination requests submitted by authorized health care providers as required in §95.1111;

(2) Maintain a database of WMTS use;

(3) Notify users of potential conflicts; and

(4) Coordinate WMTS operation with radio astronomy observatories and Federal Government radar systems as specified in §§95.1119 and 95.1121.

(5) Notify licensees—who are operating in accordance with §90.259(b)—of the need to comply with the field strength limit of §90.259(b)(11) prior to initial activation of WMTS equipment in the 1427–1432 MHz band.

(6) Notify licensees—who are operating in 1392–1395 MHz band in accordance with subpart I of part 27—of the need to comply with the field strength limit of §27.804 prior to initial activation of WMTS equipment in the 1395–1400 MHz band.

[65 FR 44008, July 17, 2000, as amended at 67 FR 41682, June 20, 2002]

§95.1115 General technical requirements.

(a) *Field strength limits.* (1) In the 608–614 MHz band, the maximum allowable field strength is 200 mV/m, as measured at a distance of 3 meters, using measuring instrumentation with a CISPR quasi-peak detector.

(2) In the 1395–1400 MHz and 1427–1432 MHz bands, the maximum allowable field strength is 740 mV/m, as measured at a distance of 3 meters, using measuring equipment with an averaging detector and a 1MHz measurement bandwidth.

(b) *Undesired emissions.* (1) Out-of-band emissions below 960 MHz are limited to 200 microvolts/meter, as measured at a distance of 3 meters, using measuring instrumentation with a CISPR quasi-peak detector.

(2) Out-of-band emissions above 960 MHz are limited to 500 microvolts/meter as measured at a distance of 3 meters, using measuring equipment with an averaging detector and a 1 MHz measurement bandwidth.

(c) *Emission types.* A wireless medical telemetry device may transmit any emission type appropriate for communications in this service, except for video and voice. Waveforms such as electrocardiograms (ECGs) are not considered video.

(d) *Channel use.* (1) In the 1395–1400 MHz and 1427–1432 MHz bands, no specific channels are specified. Wireless medical telemetry devices may operate on any channel within the bands authorized for wireless medical telemetry use in this part.

(2) In the 608–614 MHz band, wireless medical telemetry devices utilizing broadband technologies such as spread spectrum shall be capable of operating within one or more of the following channels of 1.5 MHz each, up to a maximum of 6 MHz, and shall operate on the minimum number of channels necessary to avoid harmful interference to any other wireless medical telemetry devices.

608.0–609.5 MHz
609.5–611.0 MHz
611.0–612.5 MHz
612.5–614.0 MHz

(3) Channel usage is on a co-primary shared basis only, and channels will not be assigned for the exclusive use of any entity.

(4) Authorized health care providers, in conjunction with the equipment manufacturers, must cooperate in the selection and use of frequencies in order to reduce the potential for interference with other wireless medical telemetry devices, or other co-primary users. Operations in the 608–614 MHz band (television channel 37) are not protected from adjacent band interference from broadcast television operating on channels 36 and 38.

(e) *Frequency stability.* Manufacturers of wireless medical telemetry devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all of the manufacturer's specified conditions.

[65 FR 44008, July 17, 2000, as amended at 67 FR 6194, Feb. 11, 2002; 68 FR 68547, Dec. 9, 2003; 75 FR 19285, Apr. 14, 2010]

§ 95.1117 Types of communications.

(a) All types of communications except voice and video are permitted, on both a unidirectional and bidirectional basis, provided that all such communications are related to the provision of medical care. Waveforms such as electrocardiograms (ECGs) are not considered video.

(b) Operations that comply with the requirements of this part may be conducted under manual or automatic control, and on a continuous basis.

§ 95.1119 Specific requirements for wireless medical telemetry devices operating in the 608–614 MHz band.

For a wireless medical telemetry device operating within the frequency range 608–614 MHz and that will be located near the radio astronomy observatories listed below, operation is not permitted until a WMTS frequency coordinator specified in § 95.1113 has coordinated with, and obtain the written concurrence of, the director of the affected radio astronomy observatory before the equipment can be installed or operated

(a) Within 80 kilometers of:

(1) National Astronomy and Ionosphere Center, Arecibo, Puerto Rico: 18°20′38.28″ North Latitude, 66°45′09.42″ West Longitude.

(2) National Radio Astronomy Observatory, Socorro, New Mexico: 34°04′43″ North Latitude, 107°37′04″ West Longitude.

(3) National Radio Astronomy Observatory, Green Bank, West Virginia: 38°26′08″ North Latitude, 79°49′42″ West Longitude.

(b) Within 32 kilometers of the National Radio Astronomy Observatory centered on:

Very long baseline array stations	Latitude (north)	Longitude (west)
Pie Town, NM	34°18′	108°07′
Kitt Peak, AZ	31°57′	111°37′
Los Alamos, NM	35°47′	106°15′
Fort Davis, TX	30°38′	103°57′
North Liberty, IA	41°46′	91°34′
Brewster, WA	48°08′	119°41′
Owens Valley, CA	37°14′	118°17′
Saint Croix, VI	17°46′	64°35′
Mauna Kea, HI	19°49′	155°28′
Hancock, NH	42°56′	71°59′

The National Science Foundation point of contact for coordination is: Spectrum Manager, Division of Astronomical Sciences, NSF Room 1045, 4201 Wilson Blvd., Arlington, VA 22230, telephone: 703–306–1823.

§ 95.1121 Specific requirements for wireless medical telemetry devices operating in the 1395–1400 and 1427–1432 MHz bands.

Due to the critical nature of communications transmitted under this part, the frequency coordinator in consultation with the National Telecommunications and Information Administration shall determine whether there are any Federal Government systems whose operations could affect, or could be affected by, proposed wireless medical telemetry operations in the 1395–1400 MHz and 1427–1432 MHz bands. The locations of government systems in these bands are specified in footnotes US351 and US352 of § 2.106 of this chapter.

[75 FR 19285, Apr. 14, 2010]

§ 95.1123 Protection of medical equipment.

The manufacturers, installers and users of WMTS equipment are cautioned that the operation of this equipment could result in harmful interference to other nearby medical devices.

§ 95.1125 RF safety.

Portable devices as defined in § 2.1093(b) of this chapter operating in the WMTS are subject to radio frequency radiation exposure requirements as specified in §§ 1.1307(b) and 2.1093 of this chapter. Applications for equipment authorization of WMTS devices must contain a statement confirming compliance with these requirements. Technical information showing the basis for this statement must be submitted to the Commission upon request.

§ 95.1127 Station identification.

A WMTS station is not required to transmit a station identification announcement.

§ 95.1129 Station inspection.

All WMTS transmitters must be available for inspection upon request by an authorized FCC representative.

Subpart I—Medical Device Radiocommunication Service (MedRadio)

SOURCE: 74 FR 22709, May 14, 2009, unless otherwise noted.

§ 95.1201 Eligibility.

Operation in the MedRadio service is permitted by rule and without an individual license issued by the FCC. Duly authorized health care professionals are permitted to operate MedRadio transmitters. Persons may also operate MedRadio transmitters to the extent the transmitters are incorporated into implanted or body-worn medical devices that are used by the person at the direction of a duly authorized health care professional; this includes medical devices that have been implanted in that person or placed on the body of that person by or under the direction of a duly authorized health care professional. Manufacturers of medical devices that include MedRadio transmitters, and their representatives, are authorized to operate transmitters in this service for the purpose of demonstrating such equipment to duly authorized health care professionals. No entity that is a foreign government or which is acting in its capacity as a representative of a foreign government is eligible to operate a MedRadio transmitter. The term ''duly authorized health care professional'' means a physician or other individual authorized under state or federal law to provide health care services. Operations that comply with the requirements of this part may be conducted under manual or automatic control.

§ 95.1203 Authorized locations.

MedRadio operation is authorized anywhere CB station operation is authorized under § 95.405, except that use of Medical Body Area Network devices in the 2360–2390 MHz band is restricted to indoor operation within a health care facility registered with the MBAN coordinator under § 95.1225. A health care facility includes hospitals and other establishments that offer services, facilities and beds for use beyond a 24 hour period in rendering medical

treatment, and institutions and organizations regularly engaged in providing medical services through clinics, public health facilities, and similar establishments, including government entities and agencies such as Veterans Administration hospitals

[77 FR 55732, Sept. 11, 2012]

§ 95.1205 Station identification.

A station is not required to transmit a station identification announcement.

§ 95.1207 Station inspection.

Any non-implanted MedRadio transmitter must be made available for inspection upon request by an authorized FCC representative. Persons operating implanted or body-worn MedRadio transmitters shall cooperate reasonably with duly authorized FCC representatives in the resolution of interference.

§ 95.1209 Permissible communications.

(a) Except for the purposes of testing and for demonstrations to health care professionals, MedRadio programmer/control transmitters may transmit only non-voice data containing operational, diagnostic and therapeutic information associated with a medical implant device or medical body-worn device that has been implanted or placed on the person by or under the direction of a duly authorized health care professional.

(b) Except as provided in § 95.627(b) no MedRadio implant or body-worn transmitter shall transmit except in response to a transmission from a MedRadio programmer/control transmitter or in response to a non-radio frequency actuation signal generated by a device external to the body with respect to which the MedRadio implant or body-worn transmitter is used.

(c) MedRadio programmer/control transmitters may be interconnected with other telecommunications systems including the public switched telephone network.

(d) For the purpose of facilitating MedRadio system operation during a MedRadio communications session, as defined in § 95.627, MedRadio transmitters in the 401–406 MHz band may transmit in accordance with the provisions of § 95.627(a) for no more than 5 seconds without the communications of data; MedRadio transmitters may transmit in accordance with the provisions of § 95.627(b)(2) and (b)(3) for no more than 3.6 seconds in total within a one hour time period; and MedRadio transmitters may transmit in accordance with the provisions of § 95.627(b)(4) for no more than 360 milliseconds in total within a one hour time period.

(e) MedRadio programmer/control transmitters may not be used to relay information in the 401–406 MHz band to a receiver that is not included with a medical implant or medical body-worn device. Wireless retransmission of information intended to be transmitted by a MedRadio programmer/control transmitter or information received from a medical implant or medical body-worn transmitter shall be performed using other radio services that operate in spectrum outside of the 401–406 MHz band.

(f) MedRadio programmer/control transmitters and medical implant transmitters may not be used to relay information in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands to a receiver that is not part of the same Medical Micropower Network. Wireless retransmission of information to a receiver that is not part of the same Medical Micropower Network must be performed using other radio services that operate in spectrum outside of the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands. Not withstanding the above restrictions, a MedRadio programmer/control transmitter of an MMN may communicate with the MedRadio programmer/control transmitter of another MMN to coordinate transmissions so as to avoid interference between the two MMNs.

(g) Medical body-worn transmitters may only relay information in the 2360–2400 MHz band to a MedRadio programmer/control transmitter that is part of the same Medical Body Area Network (MBAN). A MedRadio programmer/control transmitter may not be used to relay information in the 2360–2400 MHz band to another MedRadio programmer/controller transmitter. Wireless retransmission of information to a receiver that is not

part of the same MBAN shall be performed using other radio services that operate in spectrum outside of the 2360–2400 MHz band.

(h) MedRadio programmer/control transmitters operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands shall not transmit with a duty cycle greater than 3 percent.

[74 FR 22709, May 14, 2009, as amended at 75 FR 52477, Aug. 26, 2010; 77 FR 4269, Jan. 27, 2012; 77 FR 55733, Sept. 11, 2012]

§95.1211 Channel use policy.

(a) The channels authorized for MedRadio operation by this part of the FCC Rules are available on a shared basis only and will not be assigned for the exclusive use of any entity.

(b) To reduce interference and make the most effective use of the authorized facilities, MedRadio transmitters must share the spectrum in accordance with §§95.627 or 95.628.

(c) MedRadio operation is subject to the condition that no harmful interference is caused to stations operating in the 400.150–406.000 MHz band in the Meteorological Aids, Meteorological Satellite, or Earth Exploration Satellite Services, or to other authorized stations operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, 451–457, and 2360–2400 MHz bands. MedRadio stations must accept any interference from stations operating in the 400.150–406.000 MHz band in the Meteorological Aids, Meteorological Satellite, or Earth Exploration Satellite Services, and from other authorized stations operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, 451–457, and 2360–2400 MHz bands.

[74 FR 22709, May 14, 2009, as amended at 77 FR 4270, Jan. 27, 2012; 77 FR 55733, Sept. 11, 2012]

§95.1213 Antennas.

Except for the 2390–2400 MHz band, no antenna for a MedRadio transmitter shall be configured for permanent outdoor use. In addition, any MedRadio antenna used outdoors shall not be affixed to any structure for which the height to the tip of the antenna will exceed three (3) meters (9.8 feet) above ground.

[77 FR 55733, Sept. 11, 2012

§95.1215 Disclosure policies.

(a) Manufacturers of MedRadio transmitters operating in the 401–406 MHz band must include with each transmitting device the following statement:

''This transmitter is authorized by rule under the Medical Device Radiocommunication Service (in part 95 of the FCC Rules) and must not cause harmful interference to stations operating in the 400.150–406.000 MHz band in the Meteorological Aids (*i.e.*, transmitters and receivers used to communicate weather data), the Meteorological Satellite, or the Earth Exploration Satellite Services and must accept interference that may be caused by such stations, including interference that may cause undesired operation. This transmitter shall be used only in accordance with the FCC Rules governing the Medical Device Radiocommunication Service. Analog and digital voice communications are prohibited. Although this transmitter has been approved by the Federal Communications Commission, there is no guarantee that it will not receive interference or that any particular transmission from this transmitter will be free from interference.''

(b) Manufacturers of MedRadio transmitters operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands must include with each transmitting device the following statement:

''This transmitter is authorized by rule under the MedRadio Service (47 CFR part 95). This transmitter must not cause harmful interference to stations authorized to operate on a primary basis in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands, and must accept interference that may be caused by such stations, including interference that may cause undesired operation. This transmitter shall be used only in accordance with the FCC Rules governing the MedRadio Service. Analog and digital voice communications are prohibited. Although this transmitter has been approved by the Federal Communications Commission, there is no guarantee that it will not receive interference or that any particular transmission from this transmitter will be free from interference.''

(c) Manufacturers of MedRadio transmitters operating in the 2360–2400 MHz band must include with each transmitting device the following statement:

''This transmitter is authorized by rule under the MedRadio Service (47 CFR part 95). This transmitter must not cause harmful interference to stations authorized to operate on a primary basis in the 2360–2400 MHz band,

and must accept interference that may be caused by such stations, including interference that may cause undesired operation. This transmitter shall be used only in accordance with the FCC Rules governing the MedRadio Service. Analog and digital voice communications are prohibited. Although this transmitter has been approved by the Federal Communications Commission, there is no guarantee that it will not receive interference or that any particular transmission from this transmitter will be free from interference.''

[77 FR 4270, Jan. 27, 2012, as amended at 77 FR 55733, Sept. 11, 2012]

§ 95.1217 Labeling requirements.

(a)(1) MedRadio programmer/control transmitters operating in the 401–406 MHz band shall be labeled as provided in part 2 of this chapter and shall bear the following statement in a conspicuous location on the device:

''This device may not interfere with stations operating in the 400.150–406.000 MHz band in the Meteorological Aids, Meteorological Satellite, and Earth Exploration Satellite Services and must accept any interference received, including interference that may cause undesired operation.''

The statement may be placed in the instruction manual for the transmitter where it is not feasible to place the statement on the device.

(2) MedRadio programmer/control transmitters operating in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands shall be labeled as provided in part 2 of this chapter and shall bear the following statement in a conspicuous location on the device:

''This device may not interfere with stations authorized to operate on a primary basis in the 413–419 MHz, 426–432 MHz, 438–444 MHz, and 451–457 MHz bands, and must accept any interference received, including interference that may cause undesired operation.''

The statement may be placed in the instruction manual for the transmitter where it is not feasible to place the statement on the device.

(3) MedRadio programmer/control transmitters operating in the 2360–2400 MHz band shall be labeled as provided in part 2 of this chapter and shall bear the following statement in a conspicuous location on the device:

''This device may not interfere with stations authorized to operate on a primary basis in the 2360–2400 MHz band, and must accept any interference received, including interference that may cause undesired operation.''

The statement may be placed in the instruction manual for the transmitter where it is not feasible to place the statement on the device.

(b) Where a MedRadio programmer/control transmitter is constructed in two or more sections connected by wire and marketed together, the statement specified in this section is required to be affixed only to the main control unit.

(c) MedRadio transmitters shall be identified with a serial number, except that in the 2360–2400 MHz band only the MedRadio programmer/controller transmitter shall be identified with a serial number. The FCC ID number associated with a medical implant transmitter and the information required by § 2.925 of this chapter may be placed in the instruction manual for the transmitter and on the shipping container for the transmitter, in lieu of being placed directly on the transmitter.

[74 FR 22709, May 14, 2009, as amended at 77 FR 4270, Jan. 27, 2012; 77 FR 55734, Sept. 11, 2012]

§ 95.1219 Marketing limitations.

Transmitters intended for operation in the MedRadio Service may be marketed and sold only for the permissible communications described in § 95.1209.

§ 95.1221 RF exposure.

A MedRadio medical implant device or medical body-worn transmitter is subject to the radiofrequency radiation exposure requirements specified in §§ 1.1307(b) and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must demonstrate compliance with these requirements using either finite difference time domain (FDTD) computational modeling or laboratory measurement techniques. Where a showing is based on computational modeling, the Commission retains the discretion to request that supporting documentation and/or specific absorption rate (SAR) measurement data be submitted.

[78 FR 33653, June 4, 2013]

§95.1223 Registration and frequency coordination in the 2360–2390 MHz Band.

(a) *Registration*. A health care facility must register all MBAN devices it proposes to operate in the 2360–2390 MHz band with a frequency coordinator designated under §95.1225 of this chapter. Operation of these devices in the 2360–2390 MHz band is prohibited prior to the MBAN coordinator notifying the health care facility that registration and coordination (to the extent coordination is required under paragraph (c) of this section), is complete. The registration must include the following information:

(1) Specific frequencies or frequency range(s) within the 2360–2390 MHz band to be used, and the capabilities of the MBAN equipment to use the 2390–2400 MHz band;

(2) Effective isotropic radiated power;

(3) Number of control transmitters in use at the health care facility as of the date of registration including manufacturer name(s) and model numbers and FCC identification number;

(4) Legal name of the health care facility;

(5) Location of control transmitters (*e.g.*, geographic coordinates, street address, building);

(6) Point of contact for the health care facility (*e.g.*, name, title, office, phone number, fax number, email address); and

(7) In the event an MBAN has to cease operating in all or a portion of the 2360–2390 MHz band due to interference under §95.1211 or changes in coordination under paragraph (c) of this section, a point of contact (including contractors) for the health care facility that is responsible for ensuring that this change is effected whenever it is required (*e.g.*, name, title, office, phone number, fax number, email address). The health care facility also must state whether, in such cases, its MBAN operation is capable of defaulting to the 2390–2400 MHz band and that it is responsible for ceasing MBAN operations in the 2360–2390 MHz band or defaulting traffic to other hospital systems.

(b) *Notification*. A health care facility shall notify the frequency coordinator whenever an MBAN control transmitter in the 2360–2390 MHz band is permanently taken out of service, unless it is replaced with transmitter(s) using the same technical characteristics as those reported on the health care facility's registration. A health care facility shall keep the information contained in each registration current, shall notify the frequency coordinator of any material change to the MBAN's location or operating parameters, and is prohibited from operating the MBAN in the 2360–2390 MHz band under changed operating parameters until the frequency coordinator determines whether such changes require coordination with the AMT coordinator designated under §87.305 of this chapter and, if so, the coordination required under paragraph (c) of this section has been completed.

(c) *Coordination procedures*. The frequency coordinator will determine if an MBAN is within the line of sight of an AMT receive facility in the 2360–2390 MHz band and notify the health care facility when it may begin MBAN operations under the applicable procedures in (c)(1) or (2) of this section.

(1) If the MBAN is beyond the line of sight of an AMT receive facility, it may operate without prior coordination with the AMT coordinator, provided that the MBAN coordinator provides the AMT coordinator with the MBAN registration information and the AMT coordinator concurs that the MBAN is beyond the line of sight prior to the MBAN beginning operations in the band.

(2) If the MBAN is within line of sight of an AMT receive facility, the MBAN frequency coordinator shall achieve a mutually satisfactory coordination agreement with the AMT frequency coordinator prior to the MBAN beginning operations in the band. Such coordination agreement shall provide protection to AMT receive stations consistent with International Telecommunication Union (ITU) Recommendation ITU–R M.1459, ''Protection criteria for telemetry systems in the aeronautical mobile service and mitigation techniques to facilitate sharing with geostationary broadcasting-satellite and mobile-satellite services in the frequency bands 1 452–1 525 and 2 310–2 360 MHz,'' May 2000, as

adjusted using generally accepted engineering practices and standards that are mutually agreeable to both coordinators to take into account the local conditions and operating characteristics of the applicable AMT and MBAN facilities, and shall specify when the device shall limit its transmissions to segments of the 2360–2390 MHz band or shall cease operation in the band. This ITU document is incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51 and approved by the Director of Federal Register. Copies of the recommendation may be obtained from ITU, Place des Nations, 1211 Geneva 20, Switzerland, or online at *http://www.itu.int/en/publications/Pages/default.aspx*. You may inspect a copy at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. ''Generally accepted engineering practices and standards'' include, but are not limited to, engineering analyses and measurement data as well as limiting MBAN operations in the band by time or frequency.

(3) If an AMT operator plans to operate a receive site not previously analyzed by the MBAN coordinator to determine line of sight to an MBAN facility, the AMT operator shall consider using locations that are beyond the line of sight of a registered health care facility. If the AMT operator determines that non-line of sight locations are not practical for its purposes, the AMT coordinator shall notify the MBAN coordinator upon no less than 7 days' notice that the registered health care facility must cease MBAN operations in the 2360–2390 MHz band unless the parties can achieve a mutually satisfactory coordination agreement under paragraph (c)(2) of this section.

[77 FR 55734, Sept. 11, 2012]

§ 95.1225 Frequency coordinator.

(a) The Commission will designate a frequency coordinator(s) to manage the operation of medical body area networks in the 2360 MHz -2390 MHz band.

(b) The frequency coordinator shall perform the following functions:

(1) Register health care facilities that operate an MBAN in the 2360–2390 MHz band, maintain a database of these MBAN transmitter locations and operational parameters, and provide the Commission with information contained in the database upon request;

(2) Determine if an MBAN is within line of sight of an AMT receive facility in the 2360–2390 MHz band and coordinate MBAN operations with the designated AMT coordinator as specified in § 87.305 of this chapter;

(3) Notify a registered health care facility when an MBAN has to change frequency within the 2360–2390 MHz band or to cease operating in the band consistent with a coordination agreement between the MBAN and the AMT coordinators;

(4) Develop procedures to ensure that registered health care facilities operate an MBAN consistent with the coordination requirements under § 95.1223; and

(5) Identify the MBAN that is the source of interference in response to a complaint from the AMT coordinator and notify the health care facility of alternative frequencies available for MBAN use or to cease operation consistent with the rules.

[77 FR 55735, Sept. 11, 2012]

Subpart J—Multi-Use Radio Service (MURS)

SOURCE: 65 FR 60878, Oct. 13, 2000, unless otherwise noted.

GENERAL PROVISIONS

§ 95.1301 Eligibility.

An entity is authorized by rule to operate a MURS transmitter if it is not a foreign government or a representative of a foreign government and if it uses the transmitter in accordance with § 95.1309 and otherwise operates in accordance with the rules contained in this subpart. No license will be issued.

§ 95.1303 Authorized locations.

(a) MURS operation is authorized:

(1) Anywhere CB station operation is permitted under §95.405; and

(2) Aboard any vessel of the United States, with the permission of the captain, while the vessel is travelling either domestically or in international waters.

(b) MURS operation is not authorized aboard aircraft in flight.

(c) Anyone intending to operate a MURS unit on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra in a manner that could pose an interference threat to the Arecibo Observatory shall notify the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the location of the unit. Operators may wish to consult interference guidelines, which will be provided by Cornell University. Operators who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification to the Interference Office, Arecibo Observatory shall be made 45 days prior to commencing operation of the unit. The notification shall state the geographical coordinates of the unit.

(2) After receipt of such notifications, the Commission will allow the Arecibo Observatory a period of 20 days for comments or objections. The operator will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory. If the Commission determines that an operator has satisfied its responsibility to make reasonable efforts to protect the Observatory from interference, the unit may be allowed to operate.

[65 FR 60878, Oct. 13, 2000, as amended at 70 FR 31374, June 1, 2005]

§95.1305 Station identification.

A MURS station is not required to transmit a station identification announcement.

§95.1307 Permissible communications.

(a) MURS stations may transmit voice or data signals as permitted in this subpart.

(b) A MURS station may transmit any emission type listed in §95.631(j) of this chapter.

(c) MURS frequencies may be used for remote control and telemetering functions. MURS transmitters may not be operated in the continuous carrier transmit mode.

(d) MURS users shall take reasonable precautions to avoid causing harmful interference. This includes monitoring the transmitting frequency for communications in progress and such other measures as may be necessary to minimize the potential for causing interference.

[67 FR 63290, Oct. 11, 2002]

§95.1309 Channel use policy.

(a) The channels authorized to MURS systems by this part are available on a shared basis only and will not be assigned for the exclusive use of any entity.

(b) Those using MURS transmitters must cooperate in the selection and use of channels in order to reduce interference and make the most effective use of authorized facilities. Channels must be selected in an effort to avoid interference to other MURS transmissions.

§95.1311 Repeater operations and signal boosters prohibited.

MURS stations are prohibited from operating as a repeater station or as a signal booster. This prohibition includes store-and-forward packet operation.

[67 FR 63290, Oct. 11, 2002]

§95.1313 Interconnection prohibited.

MURS stations are prohibited from interconnection with the public switched network. *Interconnection Defined*. Connection through automatic or manual means of multi-use radio stations with the facilities of the public switched telephone network to permit the transmission of messages or signals between points in the wireline or radio network of a public telephone company and persons served by multi-use radio stations. Wireline or radio circuits or links furnished by common carriers, which are used by licensees or other authorized persons for transmitter control (including dial-up transmitter control circuits) or as an integral part of an authorized, private, internal system

of communication or as an integral part of dispatch point circuits in a multi-use radio station are not considered to be interconnection for purposes of this rule part.

[67 FR 63290, Oct. 11, 2002]

§ 95.1315 Antenna height restriction.

The highest point of any MURS antenna must no be more than 18.3 meters (60 feet) above the ground or 6.10 meters (20 feet) above the highest point of the structure on which it is mounted.

[67 FR 63290, Oct. 11, 2002]

§ 95.1317 Grandfathered MURS Stations.

Stations that were licensed under part 90 of the Commission's Rules to operate on MURS frequencies as of November 13, 2000, are granted a license by rule that authorizes continued operations under the terms of such nullified part 90 authorizations, including any rule waivers.

[67 FR 63290, Oct. 11, 2002]

Subpart K—Personal Locator Beacons (PLB)

SOURCE: 68 FR 32678, June 2, 2003, unless otherwise noted.

§ 95.1400 Basis and purpose.

The rules in this subpart are intended to provide individuals in remote areas a means to alert others of an emergency situation and to aid search and rescue personnel locate those in distress. The effective date for the rules in this subpart will be July 1, 2003.

§ 95.1401 Frequency.

The frequency band 406.0–406.1 MHz is an emergency and distress frequency band available for use by Personal Locator Beacons (PLBs). Personal Locator Beacons that transmit on the frequency band 406.0–406.1 MHz must use G1D emission. Use of these frequencies must be limited to transmission of distress and safety communications.

§ 95.1402 Special requirements for 406 MHz PLBs.

(a) All 406 MHz PLBs must meet all the technical and performance standards contained in the Radio Technical Commission for Maritime (RTCM) Service document ''RTCM Recommended Standards for 406 MHz Satellite Personal Locator Beacons (PLBs),'' Version 1.1, RTCM Paper 76–2002/SC110–STD, dated June 19, 2002. This RTCM document is incorporated by reference in accordance with 5 U.S.C. 552(a), and 1 CFR part 51. Copies of the document are available and may be obtained from the Radio Technical Commission for Maritime Services, 1800 Diagonal Road, Suite 600, Alexandria, Virginia 22314–2840. The document is available for inspection at Commission headquarters at 445 12th Street SW., Washington, DC 20554. Copies may also be inspected at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) The 406 MHz PLB must contain, as an integral part, a homing beacon operating only on 121.500 MHz and meeting all requirements described in the RTCM Recommended Standards document described in paragraph (a) of this section. The 121.500 MHz homing beacon must have a continuous duty cycle that can be interrupted only during the transmission of the 406 MHz signal. The 406 MHz PLB shall transmit a unique identifier (Morse code ''P'') on the 121.500 MHz signals.

(c) Before a 406 MHz PLB certification application is submitted to the Commission, the applicant must have obtained certification from a test facility, recognized by one of the COSPAS/SARSAT Partners that the PLB satisfies the standards contained in the COSPAS/SARSAT document COSPAS/SARSAT 406 MHz Distress Beacon Type Approval Standard (C/S T.007). Additionally, an independent test facility must certify that the PLB complies with the electrical and environmental standards associated with the RTCM Recommended Standards.

(d) The procedures of Notification by the equipment manufacturer and Certification from either the Commission or designated Telecommunications Certification Body are contained in subpart J of part 2 of this chapter.

(e) An identification code, issued by the National Oceanic and Atmospheric Administration (NOAA), the United States Program Manager for the 406 MHz COSPAS/SARSAT satellite system, must be programmed in each PLB unit to establish a unique identification for each PLB station. With each marketable PLB unit, the manufacturer or grantee must include a postage pre-paid registration card printed with the PLB identification code addressed to: SARSAT Beacon Registration, NOAA, NESDIS, E/SP3, Room 3320, FB–4, 5200 Auth Road, Suitland, Maryland 20746–4303. The registration card must request the owner's name, address, telephone number, alternate emergency contact and include the following statement: ''WARNING'' failure to register this PLB with NOAA could result in a monetary forfeiture order being issued to the owner.''

(f) To enhance protection of life and property, it is mandatory that each 406 MHz PLB be registered with NOAA and that information be kept up-to-date. In addition to the identification plate or label requirements contained in §§ 2.925 and 2.926 of this chapter, each 406 MHz PLB must be provided on the outside with a clearly discernable permanent plate or label containing the following statement: ''The owner of this 406 MHz PLB must register the NOAA identification code contained on this label with the National Oceanic and Atmospheric Administration (NOAA) whose address is: SARSAT Beacon Registration, NOAA, NESDIS, E/SP3, Room 3320, FB–4, 5200 Auth Road, Suitland, Maryland 20746–4303.'' Owners shall advise NOAA in writing upon change of PLB ownership, or any other change in registration information. NOAA will provide registrants with proof of registration and change of registration postcards.

(g) For 406 MHz PLBs with identification codes that can be changed after manufacture, the identification code shown on the plate or label must be easily replaceable using commonly available tools.

Subpart L—Dedicated Short-Range Communications Service On-Board Units (DSRCS-OBUs)

SOURCE: 69 FR 46446, Aug. 3, 2004, unless otherwise noted.

§ 95.1501 Scope.

This subpart sets out the regulations governing Dedicated Short-Range Communications Service On-Board Units (DSRCS-OBUs) in the 5850–5925 MHz band. DSRCS Roadside Units (RSUs) are authorized under part 90 of this chapter and DSRCS, RSU, and OBU are defined in § 90.7 of this chapter.

§ 95.1503 Eligibility.

All entities for which the Commission has licensing authority are authorized by rule to operate an FCC certified On-Board Unit in accordance with the rules contained in this subpart. No individual FCC license will be issued. (The FCC does not have authority to license foreign governments or their representatives, nor stations belonging to and operated by the United States Government.)

§ 95.1505 Authorized locations.

Operation of DSRCS On-Board Units is authorized anywhere CB station operation is permitted under § 95.405.

§ 95.1507 Station Identification.

A DSRCS On-Board Unit is not required to transmit an FCC station identification announcement.

§ 95.1509 ASTM E2213–03 DSRC Standard.

On-Board Units operating in the 5850–5925 MHz band shall comply with the following technical standards, which are incorporated by reference: American Society for Testing and Materials (ASTM) E2213–03, Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems—5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control

(MAC) and Physical Layer (PHY) Specifications published September 2003 (ASTM E2213–03 DSRC Standard). The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC 20554 or National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html*. Copies of the ASTM E2213–03 DSRC Standard can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428–2959. Copies may also be obtained from ASTM via the Internet at *http://www.astm.org*.

§ 95.1511 Frequencies available.

(a) The following table indicates the channel designations of frequencies available for assignment to eligible applicants within the 5850–5925 MHz band for On-Board Units (OBUs): [1]

Channel No.	Channel use	Frequency range (MHz)
170	Reserved	5850–5855
172	Service Channel [2]	5855–5865
174	Service Channel	5865–5875
175	Service Channel [3]	5865–5885
176	Service Channel	5875–5885
178	Control Channel	5885–5895
180	Service Channel	5895–5905
181	Service Channel [3]	5895–5915
182	Service Channel	5905–5915
184	Service Channel [4]	5915–5925

[1] The maximum output power for portable DSRCS–OBUs is 1.0 mW. *See* § 95.639(i).
[2] Channel 172 is designated for public safety applications involving safety of life and property.
[3] Channel Nos. 174/176 may be combined to create a twenty megahertz channel, designated Channel No. 175. Channels 180/182 may be combined to create a twenty-megahertz channel, designated Channel No. 181.
[4] Channel 184 is designated for public safety applications involving safety of life and property.

(b) Except as provided in paragraph (c) of this section, non-reserve DSRCS channels are available on a shared basis only for use in accordance with the Commission's rules. All licensees shall cooperate in the selection and use of channels in order to reduce interference. This includes monitoring for communications in progress and any other measures as may be necessary to minimize interference. Licensees suffering or causing harmful interference within a communications zone are expected to cooperate and resolve this problem by mutually satisfactory arrangements. If the licensees are unable to do so, the Commission may impose restrictions, including specifying the transmitter power, antenna height and direction, additional filtering, or area or hours of operation of the stations concerned. Further, the use of any channel at a given geographical location may be denied when, in the judgment of the Commission, its use at that location is not in the public interest; the use of any channel may be restricted as to specified geographical areas, maximum power, or such other operating conditions, contained in this part or in the station authorization.

(c) *Safety/public safety priority*. The following access priority governs all DSRCS operations:

(1) Communications involving the safety of life have access priority over all other DSRCS communications;

(2) Subject to a control channel priority system management strategy (see ASTM E2213–03 DSRC Standard at § 4.1.1.2(4)), DSRCS communications involving public safety have access priority over all other DSRC communications not listed in paragraph (c)(1) of this section. On-Board Units (OBUs) operated by state or local governmental entities are presumptively engaged in public safety priority communications.

(d) *Non-priority communications*. DSRCS communications not listed in paragraph (c) of this section, are non-priority communications. If a dispute arises concerning non-priority DSRCS–

OBU communications with Roadside Units (RSUs), the provisions of §90.377(e) and (f) of this chapter will apply. Disputes concerning non-priority DSRCS–OBU communications not associated with RSUs are governed by paragraph (b) of this section.

[71 FR 52750, Sept. 7, 2006]

PART 97—AMATEUR RADIO SERVICE

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APPENDIX 1 TO PART 97—PLACES WHERE THE AMATEUR SERVICE IS REGULATED BY THE FCC

APPENDIX 2 TO PART 97—VEC REGIONS

AUTHORITY: 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303. Interpret or apply 48 Stat. 1064–1068, 1081–1105, as amended; 47 U.S.C. 151–155, 301–609, unless otherwise noted.

SOURCE: 54 FR 25857, June 20, 1989, unless otherwise noted.

EDITORIAL NOTE: Nomenclature changes to part 97 appear at 63 FR 54077, Oct. 8, 1998.

Subpart A—General Provisions

§97.1 Basis and purpose.

The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial

communication service, particularly with respect to providing emergency communications.

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

§ 97.3 Definitions.

(a) The definitions of terms used in part 97 are:

(1) *Amateur operator*. A person named in an amateur operator/primary license station grant on the ULS consolidated licensee database to be the control operator of an amateur station.

(2) *Amateur radio services*. The amateur service, the amateur-satellite service and the radio amateur civil emergency service.

(4) *Amateur service*. A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

(5) *Amateur station*. A station in an amateur radio service consisting of the apparatus necessary for carrying on radiocommunications.

(6) *Automatic control*. The use of devices and procedures for control of a station when it is transmitting so that compliance with the FCC Rules is achieved without the control operator being present at a control point.

(7) *Auxiliary station*. An amateur station, other than in a message forwarding system, that is transmitting communications point-to-point within a system of cooperating amateur stations.

(8) *Bandwidth*. The width of a frequency band outside of which the mean power of the transmitted signal is attenuated at least 26 dB below the mean power of the transmitted signal within the band.

(9) *Beacon*. An amateur station transmitting communications for the purposes of observation of propagation and reception or other related experimental activities.

(10) *Broadcasting*. Transmissions intended for reception by the general public, either direct or relayed.

(11) *Call sign system*. The method used to select a call sign for amateur station over-the-air identification purposes. The call sign systems are:

(i) *Sequential call sign system*. The call sign is selected by the FCC from an alphabetized list corresponding to the geographic region of the licensee's mailing address and operator class. The call sign is shown on the license. The FCC will issue public announcements detailing the procedures of the sequential call sign system.

(ii) *Vanity call sign system*. The call sign is selected by the FCC from a list of call signs requested by the licensee. The call sign is shown on the license. The FCC will issue public announcements detailing the procedures of the vanity call sign system.

(iii) *Special event call sign system*. The call sign is selected by the station licensee from a list of call signs shown on a common data base coordinated, maintained and disseminated by the amateur station special event call sign data base coordinators. The call sign must have the single letter prefix K, N or W, followed by a single numeral 0 through 9, followed by a single letter A through W or Y or Z (for example K1A). The special event call sign is substituted for the call sign shown on the station license grant while the station is transmitting. The FCC will issue public announcements detailing the procedures of the special event call sign system.

(12) *CEPT radio amateur license*. A license issued by a country belonging to the European Conference of Postal and Telecommunications Administrations (CEPT) that has adopted Recommendation T/R 61–01 (Nice 1985, Paris 1992, Nicosia 2003).

(13) *Control operator*. An amateur operator designated by the licensee of a

station to be responsible for the transmissions from that station to assure compliance with the FCC Rules.

(14) *Control point*. The location at which the control operator function is performed.

(15) *CSCE*. Certificate of successful completion of an examination.

(16) *Earth station*. An amateur station located on, or within 50 km of, the Earth's surface intended for communications with space stations or with other Earth stations by means of one or more other objects in space.

(17) [Reserved]

(18) *External RF power amplifier*. A device capable of increasing power output when used in conjunction with, but not an integral part of, a transmitter.

(19) [Reserved]

(20) *FAA*. Federal Aviation Administration.

(21) *FCC*. Federal Communications Commission.

(22) *Frequency coordinator*. An entity, recognized in a local or regional area by amateur operators whose stations are eligible to be auxiliary or repeater stations, that recommends transmit/receive channels and associated operating and technical parameters for such stations in order to avoid or minimize potential interference.

(23) *Harmful interference*. Interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with the Radio Regulations.

(24) *IARP (International Amateur Radio Permit)*. A document issued pursuant to the terms of the Inter-American Convention on an International Amateur Radio Permit by a country signatory to that Convention, other than the United States. Montrouis, Haiti. AG/doc.3216/95.

(25) *Indicator*. Words, letters or numerals appended to and separated from the call sign during the station identification.

(26) *Information bulletin*. A message directed only to amateur operators consisting solely of subject matter of direct interest to the amateur service.

(27) *In-law*. A parent, stepparent, sibling, or step-sibling of a licensee's spouse; the spouse of a licensee's sibling, step-sibling, child, or stepchild; or the spouse of a licensee's spouse's sibling or step-sibling.

(28) *International Morse code*. A dot-dash code as defined in ITU–T Recommendation F.1 (March, 1998), Division B, I. Morse code.

(29) *ITU*. International Telecommunication Union.

(30) *Line A*. Begins at Aberdeen, WA, running by great circle arc to the intersection of 48° N, 120° W, thence along parallel 48° N, to the intersection of 95° W, thence by great circle arc through the southernmost point of Duluth, MN, thence by great circle arc to 45° N, 85° W, thence southward along meridian 85° W, to its intersection with parallel 41° N, thence along parallel 41° N, to its intersection with meridian 82° W, thence by great circle arc through the southernmost point of Bangor, ME, thence by great circle arc through the southernmost point of Searsport, ME, at which point it terminates.

(31) *Local control*. The use of a control operator who directly manipulates the operating adjustments in the station to achieve compliance with the FCC Rules.

(32) *Message forwarding system*. A group of amateur stations participating in a voluntary, cooperative, interactive arrangement where communications are sent from the control operator of an originating station to the control operator of one or more destination stations by one or more forwarding stations.

(33) *National Radio Quiet Zone*. The area in Maryland, Virginia and West Virginia Bounded by 39°15′ N on the north, 78°30′ W on the east, 37°30′ N on the south and 80°30′ W on the west.

(34) *Physician*. For the purpose of this part, a person who is licensed to practice in a place where the amateur service is regulated by the FCC, as either a Doctor of Medicine (M.D.) or a Doctor of Osteopathy (D.O.)

(35) *Question pool*. All current examination questions for a designated written examination element.

(36) *Question set*. A series of examination questions on a given examination selected from the question pool.

(37) *Radio Regulations*. The latest ITU *Radio Regulations* to which the United States is a party.

(38) *RACES* (radio amateur civil emergency service). A radio service using amateur stations for civil defense communications during periods of local, regional or national civil emergencies.

(39) *Remote control*. The use of a control operator who indirectly manipulates the operating adjustments in the station through a control link to achieve compliance with the FCC Rules.

(40) *Repeater*. An amateur station that simultaneously retransmits the transmission of another amateur station on a different channel or channels.

(41) *Space station*. An amateur station located more than 50 km above the Earth's surface.

(42) *Space telemetry*. A one-way transmission from a space station of measurements made from the measuring instruments in a spacecraft, including those relating to the functioning of the spacecraft.

(43) *Spurious emission*. An emission, or frequencies outside the necessary bandwidth of a transmission, the level of which may be reduced without affecting the information being transmitted.

(44) *Telecommand*. A one-way transmission to initiate, modify, or terminate functions of a device at a distance.

(45) *Telecommand station*. An amateur station that transmits communications to initiate, modify or terminate functions of a space station.

(46) *Telemetry*. A one-way transmission of measurements at a distance from the measuring instrument.

(47) *Third party communications*. A message from the control operator (first party) of an amateur station to another amateur station control operator (second party) on behalf of another person (third party).

(48) *ULS (Universal Licensing System)*. The consolidated database, application filing system and processing system for all Wireless Telecommunications Services.

(49) *VE*. Volunteer examiner.

(50) *VEC*. Volunteer-examiner coordinator.

(b) The definitions of technical symbols used in this part are:

(1) *EHF* (extremely high frequency). The frequency range 30–300 GHz.

(2) *HF* (high frequency). The frequency range 3–30 MHz.

(3) *Hz*. Hertz.

(4) *m*. Meters.

(5) *MF* (medium frequency). The frequency range 300–3000 kHz.

(6) *PEP* (peak envelope power). The average power supplied to the antenna transmission line by a transmitter during one RF cycle at the crest of the modulation envelope taken under normal operating conditions.

(7) *RF*. Radio frequency.

(8) *SHF* (super-high frequency). The frequency range 3–30 GHz.

(9) *UHF* (ultra-high frequency). The frequency range 300–3000 MHz.

(10) *VHF* (very-high frequency). The frequency range 30–300 MHz.

(11) *W*. Watts.

(c) The following terms are used in this part to indicate emission types. Refer to § 2.201 of the FCC Rules, *Emission, modulation and transmission characteristics*, for information on emission type designators.

(1) *CW*. International Morse code telegraphy emissions having designators with A, C, H, J or R as the first symbol; 1 as the second symbol; A or B as the third symbol; and emissions J2A and J2B.

(2) *Data*. Telemetry, telecommand and computer communications emissions having (i) designators with A, C, D, F, G, H, J or R as the first symbol, 1 as the second symbol, and D as the third symbol; (ii) emission J2D; and (iii) emissions A1C, F1C, F2C, J2C, and J3C having an occupied bandwidth of 500 Hz or less when transmitted on an amateur service frequency below 30 MHz. Only a digital code of a type specifically authorized in this part may be transmitted.

(3) *Image*. Facsimile and television emissions having designators with A, C, D, F, G, H, J or R as the first symbol; 1, 2 or 3 as the second symbol; C or F as the third symbol; and emissions having B as the first symbol; 7, 8 or 9 as the second symbol; W as the third symbol.

(4) *MCW*. Tone-modulated international Morse code telegraphy emissions having designators with A, C, D, F, G, H or R as the first symbol; 2 as the second symbol; A or B as the third symbol.

(5) *Phone*. Speech and other sound emissions having designators with A, C, D, F, G, H, J or R as the first symbol; 1, 2, 3 or X as the second symbol; E as the third symbol. Also speech emissions having B or F as the first symbol; 7, 8 or 9 as the second symbol; E as the third symbol. MCW for the purpose of performing the station identification procedure, or for providing telegraphy practice interspersed with speech. Incidental tones for the purpose of selective calling or alerting or to control the level of a demodulated signal may also be considered phone.

(6) *Pulse*. Emissions having designators with K, L, M, P, Q, V or W as the first symbol; 0, 1, 2, 3, 7, 8, 9 or X as the second symbol; A, B, C, D, E, F, N, W or X as the third symbol.

(7) *RTTY*. Narrow-band direct-printing telegraphy emissions having designators with A, C, D, F, G, H, J or R as the first symbol; 1 as the second symbol; B as the third symbol; and emission J2B. Only a digital code of a type specifically authorized in this part may be transmitted.

(8) *SS*. Spread spectrum emissions using bandwidth-expansion modulation emissions having designators with A, C, D, F, G, H, J or R as the first symbol; X as the second symbol; X as the third symbol.

(9) *Test*. Emissions containing no information having the designators with N as the third symbol. Test does not include pulse emissions with no information or modulation unless pulse emissions are also authorized in the frequency band.

[54 FR 25857, June 20, 1989]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting §97.3, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§97.5 Station license required.

(a) The station apparatus must be under the physical control of a person named in an amateur station license grant on the ULS consolidated license database or a person authorized for alien reciprocal operation by §97.107 of this part, before the station may transmit on any amateur service frequency from any place that is:

(1) Within 50 km of the Earth's surface and at a place where the amateur service is regulated by the FCC;

(2) Within 50 km of the Earth's surface and aboard any vessel or craft that is documented or registered in the United States; or

(3) More than 50 km above the Earth's surface aboard any craft that is documented or registered in the United States.

(b) The types of station license grants are:

(1) *An operator/primary station license grant*. One, but only one, operator/primary station license grant may be held by any one person. The primary station license is granted together with the amateur operator license. Except for a representative of a foreign government, any person who qualifies by examination is eligible to apply for an operator/primary station license grant.

(2) *A club station license grant*. A club station license grant may be held only by the person who is the license trustee designated by an officer of the club. The trustee must be a person who holds an operator/primary station license grant. The club must be composed of at least four persons and must have a name, a document of organization, management, and a primary purpose devoted to amateur service activities consistent with this part.

(3) *A military recreation station license grant*. A military recreation station license grant may be held only by the person who is the license custodian designated by the official in charge of the United States military recreational premises where the station is situated. The person must not be a representative of a foreign government. The person need not hold an amateur operator license grant.

(c) The person named in the station license grant or who is authorized for alien reciprocal operation by §97.107 of this part may use, in accordance with the applicable rules of this part, the transmitting apparatus under the physical control of the person at places

where the amateur service is regulated by the FCC.

(d) A CEPT radio-amateur license is issued to the person by the country of which the person is a citizen. The person must not:

(1) Be a resident alien or citizen of the United States, regardless of any other citizenship also held;

(2) Hold an FCC-issued amateur operator license nor reciprocal permit for alien amateur licensee;

(3) Be a prior amateur service licensee whose FCC-issued license was revoked, suspended for less than the balance of the license term and the suspension is still in effect, suspended for the balance of the license term and relicensing has not taken place, or surrendered for cancellation following notice of revocation, suspension or monetary forfeiture proceedings; or

(4) Be the subject of a cease and desist order that relates to amateur service operation and which is still in effect.

(e) An IARP is issued to the person by the country of which the person is a citizen. The person must not:

(1) Be a resident alien or citizen of the United States, regardless of any other citizenship also held;

(2) Hold an FCC-issued amateur operator license nor reciprocal permit for alien amateur licensee;

(3) Be a prior amateur service licensee whose FCC-issued license was revoked, suspended for less than the balance of the license term and the suspension is still in effect, suspended for the balance of the license term and relicensing has not taken place, or surrendered for cancellation following notice of revocation, suspension or monetary forfeiture proceedings; or

(4) Be the subject of a cease and desist order that relates to amateur service operation and which is still in effect.

[59 FR 54831, Nov. 2, 1994, as amended at 62 FR 17567, Apr. 10, 1997; 63 FR 68977, Dec. 14, 1998; 75 FR 78169, Dec. 15, 2010]

§ 97.7 Control operator required.

When transmitting, each amateur station must have a control operator. The control operator must be a person:

(a) For whom an amateur operator/primary station license grant appears on the ULS consolidated licensee database, or

(b) Who is authorized for alien reciprocal operation by § 97.107 of this part.

[63 FR 68978, Dec. 14, 1998]

§ 97.9 Operator license grant.

(a) The classes of amateur operator license grants are: Novice, Technician, General, Advanced, and Amateur Extra. The person named in the operator license grant is authorized to be the control operator of an amateur station with the privileges authorized to the operator class specified on the license grant.

(b) The person named in an operator license grant of Novice, Technician, General or Advanced Class, who has properly submitted to the administering VEs a FCC Form 605 document requesting examination for an operator license grant of a higher class, and who holds a CSCE indicating that the person has completed the necessary examinations within the previous 365 days, is authorized to exercise the rights and privileges of the higher operator class until final disposition of the application or until 365 days following the passing of the examination, whichever comes first.

[75 FR 78169, Dec. 15, 2010]

§ 97.11 Stations aboard ships or aircraft.

(a) The installation and operation of an amateur station on a ship or aircraft must be approved by the master of the ship or pilot in command of the aircraft.

(b) The station must be separate from and independent of all other radio apparatus installed on the ship or aircraft, except a common antenna may be shared with a voluntary ship radio installation. The station's transmissions must not cause interference to any other apparatus installed on the ship or aircraft.

(c) The station must not constitute a hazard to the safety of life or property. For a station aboard an aircraft, the apparatus shall not be operated while the aircraft is operating under Instrument Flight Rules, as defined by the FAA, unless the station has been found

to comply with all applicable FAA Rules.

§97.13 Restrictions on station location.

(a) Before placing an amateur station on land of environmental importance or that is significant in American history, architecture or culture, the licensee may be required to take certain actions prescribed by §§1.1305–1.1319 of this chapter.

(b) A station within 1600 m (1 mile) of an FCC monitoring facility must protect that facility from harmful interference. Failure to do so could result in imposition of operating restrictions upon the amateur station by a District Director pursuant to §97.121 of this part. Geographical coordinates of the facilities that require protection are listed in §0.121(c) of this chapter.

(c) Before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF electromagnetic field levels in excess of those allowed under §1.1310 of this chapter, the licensee is required to take certain actions.

(1) The licensee must perform the routine RF environmental evaluation prescribed by §1.1307(b) of this chapter, if the power of the licensee's station exceeds the limits given in the following table:

Wavelength band	Evaluation required if power[1] (watts) exceeds
MF	
160 m	500
HF	
80 m	500
75 m	500
40 m	500
30 m	425
20 m	225
17 m	125
15 m	100
12 m	75
10 m	50
VHF (all bands)	50
UHF	
70 cm	70
33 cm	150
23 cm	200
13 cm	250
SHF (all bands)	250
EHF (all bands)	250
Repeater stations (all bands)	*non-building-mounted antennas:* height above ground level to lowest point of antenna <10 m *and* power >500 W ERP *building-mounted antennas:* power >500 W ERP

[1] Power = PEP input to antenna except, for repeater stations only, power exclusion is based on ERP (effective radiated power).

(2) If the routine environmental evaluation indicates that the RF electromagnetic fields could exceed the limits contained in §1.1310 of this chapter in accessible areas, the licensee must take action to prevent human exposure to such RF electromagnetic fields. Further information on evaluating compliance with these limits can be found in the FCC's OET Bulletin Number 65, ''Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.''

[54 FR 25857, June 20, 1989, as amended at 55 FR 20398, May 16, 1990; 61 FR 41019, Aug. 7, 1996; 62 FR 47963, Sept. 12, 1997; 62 FR 49557, Sept. 22, 1997; 62 FR 61448, Nov. 18, 1997; 63 FR 68978, Dec. 14, 1998; 65 FR 6549, Feb. 10, 2000]

§97.15 Station antenna structures.

(a) Owners of certain antenna structures more than 60.96 meters (200 feet) above ground level at the site or located near or at a public use airport must notify the Federal Aviation Administration and register with the Commission as required by part 17 of this chapter.

(b) Except as otherwise provided herein, a station antenna structure may be erected at heights and dimensions sufficient to accommodate amateur service communications. (State and local regulation of a station antenna structure must not preclude amateur service communications. Rather, it must reasonably accommodate such communications and must constitute the minimum practicable regulation to accomplish the state or local authority's legitimate purpose. *See* PRB–1, 101 FCC 2d 952 (1985) for details.)

[64 FR 53242, Oct. 1, 1999]

§ 97.17 Application for new license grant.

(a) Any qualified person is eligible to apply for a new operator/primary station, club station or military recreation station license grant. No new license grant will be issued for a Novice or Advanced Class operator/primary station.

(b) Each application for a new amateur service license grant must be filed with the FCC as follows:

(1) Each candidate for an amateur radio operator license which requires the applicant to pass one or more examination elements must present the administering VEs with all information required by the rules prior to the examination. The VEs may collect all necessary information in any manner of their choosing, including creating their own forms.

(2) For a new club or military recreation station license grant, each applicant must present all information required by the rules to an amateur radio organization having tax-exempt status under section 501(c)(3) of the Internal Revenue Code of 1986 that provides voluntary, uncompensated and unreimbursed services in providing club and military recreation station call signs (''*Club Station Call Sign Administrator*'') who must submit the information to the FCC in an electronic batch file. The Club Station Call Sign Administrator may collect the information required by these rules in any manner of their choosing, including creating their own forms. The Club Station Call Sign Administrator must retain the applicants information for at least 15 months and make it available to the FCC upon request. The FCC will issue public announcements listing the qualified organizations that have completed a pilot autogrant batch filing project and are authorized to serve as a Club Station Call Sign Administrator.

(c) No person shall obtain or attempt to obtain, or assist another person to obtain or attempt to obtain, an amateur service license grant by fraudulent means.

(d) One unique call sign will be shown on the license grant of each new primary, club and military recreation station. The call sign will be selected by the sequential call sign system. Effective February 14, 2011, no club station license grants will be issued to a licensee who is shown as the license trustee on an existing club station license grant.

[63 FR 68978, Dec. 14, 1998. as amended at 64 FR 53242, Oct. 1, 1999; 65 FR 6549, Feb. 10, 2000; 75 FR 78170, Dec. 15, 2010]

§ 97.19 Application for a vanity call sign.

(a) The person named in an operator/primary station license grant or in a club station license grant is eligible to make application for modification of the license grant, or the renewal thereof, to show a call sign selected by the vanity call sign system. Effective February 14, 2011, the person named in a club station license grant that shows on the license a call sign that was selected by a trustee is not eligible for an additional vanity call sign. (The person named in a club station license grant that shows on the license a call sign that was selected by a trustee is eligible for a vanity call sign for his or her operator/primary station license grant on the same basis as any other person who holds an operator/primary station license grant.) Military recreation stations are not eligible for a vanity call sign.

(b) Each application for a modification of an operator/primary or club station license grant, or the renewal thereof, to show a call sign selected by the vanity call sign system must be filed in accordance with § 1.913 of this chapter.

(c) Unassigned call signs are available to the vanity call sign system with the following exceptions:

(1) A call sign shown on an expired license grant is not available to the vanity call sign system for 2 years following the expiration of the license.

(2) A call sign shown on a surrendered or canceled license grant (except for a license grant that is canceled pursuant to § 97.31) is not available to the vanity call sign system for 2 years following the date such action is taken. (The availability of a call sign shown on a license canceled pursuant to § 97.31 is governed by paragraph (c)(3) of this section.)

(i) This 2-year period does not apply to any license grant pursuant to paragraph (c)(3)(i), (ii), or (iii) of this section that is surrendered, canceled, revoked, voided, or set aside because the grantee acknowledged or the Commission determined that the grantee was not eligible for the exception. In such a case, the call sign is not available to the vanity call sign system for 30 days following the date such action is taken, or for the period for which the call sign would not have been available to the vanity call sign system pursuant to paragraphs (c)(2) or (3) of this section but for the intervening grant to the ineligible applicant, whichever is later.

(ii) An applicant to whose operator/primary station license grant, or club station license grant for which the applicant is the trustee, the call sign was previously assigned is exempt from the 2-year period set forth in paragraph (c)(2) of this section.

(3) A call sign shown on a license canceled pursuant to §97.31 of this part is not available to the vanity call sign system for 2 years following the person's death, or for 2 years following the expiration of the license grant, whichever is sooner. If, however, a license is canceled more than 2 years after the licensee's death (or within 30 days before the second anniversary of the licensee's death), the call sign is not available to the vanity call sign system for 30 days following the date such action is taken. The following applicants are exempt from this 2-year period:

(i) An applicant to whose operator/primary station license grant, or club station license grant for which the applicant is the trustee, the call sign was previously assigned; or

(ii) An applicant who is the spouse, child, grandchild, stepchild, parent, grandparent, stepparent, brother, sister, stepbrother, stepsister, aunt, uncle, niece, nephew, or in-law of the person now deceased or of any other deceased former holder of the call sign, provided that the vanity call sign requested by the applicant is from the group of call signs corresponding to the same or lower class of operator license held by the applicant as designated in the sequential call sign system; or

(iii) An applicant who is a club station license trustee acting with a written statement of consent signed by either the licensee *ante mortem* but who is now deceased, or by at least one relative as listed in paragraph (c)(3)(ii) of this section, of the person now deceased or of any other deceased former holder of the call sign, provided that the deceased former holder was a member of the club during his or her life.

(d) The vanity call sign requested by an applicant must be selected from the group of call signs corresponding to the same or lower class of operator license held by the applicant as designated in the sequential call sign system.

(1) The applicant must request that the call sign shown on the license grant be vacated and provide a list of up to 25 call signs in order of preference. In the event that the Commission receives more than one application requesting a vanity call sign from an applicant on the same receipt day, the Commission will process only the first such application entered into the Universal Licensing System. Subsequent vanity call sign applications from that applicant with the same receipt date will not be accepted.

(2) The first assignable call sign from the applicant's list will be shown on the license grant. When none of those call signs are assignable, the call sign vacated by the applicant will be shown on the license grant.

(3) Vanity call signs will be selected from those call signs assignable at the time the application is processed by the FCC.

(4) A call sign designated under the sequential call sign system for Alaska, Hawaii, Caribbean Insular Areas, and Pacific Insular areas will be assigned only to a primary or club station whose licensee's mailing address is in the corresponding state, commonwealth, or island. This limitation does not apply to an applicant for the call sign as the spouse, child, grandchild, stepchild, parent, grandparent, stepparent, brother, sister, stepbrother, stepsister, aunt, uncle, niece, nephew, or in-law, of the former holder now deceased.

[60 FR 7460, Feb. 8, 1995, as amended at 60 FR 50123, Sept. 28, 1995; 60 FR 53132, Oct. 12, 1995; 63 FR 68979, Dec. 14, 1998; 71 FR 66461, Nov. 15, 2006; 75 FR 78170, Dec. 15, 2010]

§ 97.21 Application for a modified or renewed license grant.

(a) A person holding a valid amateur station license grant:

(1) Must apply to the FCC for a modification of the license grant as necessary to show the correct mailing address, licensee name, club name, license trustee name, or license custodian name in accordance with § 1.913 of this chapter. For a club or military recreation station license grant, the application must be presented in document form to a Club Station Call Sign Administrator who must submit the information thereon to the FCC in an electronic batch file. The Club Station Call Sign Administrator must retain the collected information for at least 15 months and make it available to the FCC upon request. A Club Station Call Sign Administrator shall not file with the Commission any application to modify a club station license grant that was submitted by a person other than the trustee as shown on the license grant, except an application to change the club station license trustee. An application to modify a club station license grant to change the license trustee name must be submitted to a Club Station Call Sign Administrator and must be signed by an officer of the club.

(2) May apply to the FCC for a modification of the operator/primary station license grant to show a higher operator class. Applicants must present the administering VEs with all information required by the rules prior to the examination. The VEs may collect all necessary information in any manner of their choosing, including creating their own forms.

(3) May apply to the FCC for renewal of the license grant for another term in accordance with §§ 1.913 and 1.949 of this chapter. Application for renewal of a Technician Plus Class operator/primary station license will be processed as an application for renewal of a Technician Class operator/primary station license.

(i) For a station license grant showing a call sign obtained through the vanity call sign system, the application must be filed in accordance with § 97.19 of this part in order to have the vanity call sign reassigned to the station.

(ii) For a primary station license grant showing a call sign obtained through the sequential call sign system, and for a primary station license grant showing a call sign obtained through the vanity call sign system but whose grantee does not want to have the vanity call sign reassigned to the station, the application must be filed with the FCC in accordance with § 1.913 of this chapter. When the application has been received by the FCC on or before the license expiration date, the license operating authority is continued until the final disposition of the application.

(iii) For a club station or military recreation station license grant showing a call sign obtained through the sequential call sign system, and for a club station license grant showing a call sign obtained through the vanity call sign system but whose grantee does not want to have the vanity call sign reassigned to the station, the application must be presented in document form to a Club Station Call Sign Administrator who must submit the information thereon to the FCC in an electronic batch file. The replacement call sign will be selected by the sequential call sign system. The Club Station Call Sign Administrator must retain the collected information for at least 15 months and make it available to the FCC upon request.

(b) A person whose amateur station license grant has expired may apply to the FCC for renewal of the license grant for another term during a 2 year filing grace period. The application must be received at the address specified above prior to the end of the grace period. Unless and until the license grant is renewed, no privileges in this part are conferred.

(c) Except as provided in paragraph (a)(3) of this section, a call sign obtained under the sequential or vanity call sign system will be reassigned to the station upon renewal or modification of a station license.

[63 FR 68979, Dec. 14, 1998, as amended at 64 FR 53242, Oct. 1, 1999; 65 FR 6550, Feb. 10, 2000; 75 FR 78170, Dec. 15, 2010; 79 FR 35291, July 21, 2014]

§ 97.23 Mailing address.

Each license grant must show the grantee's correct name and mailing address. The mailing address must be in an area where the amateur service is regulated by the FCC and where the grantee can receive mail delivery by the United States Postal Service. Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct mailing address.

[63 FR 68979, Dec. 14, 1998]

§ 97.25 License term.

An amateur service license is normally granted for a 10-year term.

[63 FR 68979, Dec. 14, 1998]

§ 97.27 FCC modification of station license grant.

(a) The FCC may modify a station license grant, either for a limited time or for the duration of the term thereof, if it determines:

(1) That such action will promote the public interest, convenience, and necessity; or

(2) That such action will promote fuller compliance with the provisions of the Communications Act of 1934, as amended, or of any treaty ratified by the United States.

(b) When the FCC makes such a determination, it will issue an order of modification. The order will not become final until the licensee is notified in writing of the proposed action and the grounds and reasons therefor. The licensee will be given reasonable opportunity of no less than 30 days to protest the modification; except that, where safety of life or property is involved, a shorter period of notice may be provided. Any protest by a licensee of an FCC order of modification will be handled in accordance with the provisions of 47 U.S.C. 316.

[59 FR 54833, Nov. 2, 1994, as amended at 63 FR 68979, Dec. 14, 1998]

§ 97.29 Replacement license grant document.

Each grantee whose amateur station license grant document is lost, mutilated or destroyed may apply to the FCC for a replacement in accordance with § 1.913 of this chapter.

[63 FR 68979, Dec. 14, 1998]

§ 97.31 Cancellation on account of the licensee's death.

(a) A person may request cancellation of an operator/primary station license grant on account of the licensee's death by submitting a signed request that includes a death certificate, obituary, or Social Security Death Index data that shows the person named in the operator/primary station license grant has died. Such a request may be submitted as a pleading associated with the deceased licensee's license. *See* § 1.45 of this chapter. In addition, the Commission may cancel an operator/primary station license grant if it becomes aware of the grantee's death through other means. No action will be taken during the last thirty days of the post-expiration grace period (*see* § 97.21(b)) on a request to cancel a license due to the licensee's death.

(b) A license that is canceled due to the licensee's death is canceled as of the date of the licensee's death.

[75 FR 78171, Dec. 15, 2010]

Subpart B—Station Operation Standards

§ 97.101 General standards.

(a) In all respects not specifically covered by FCC Rules each amateur station must be operated in accordance with good engineering and good amateur practice.

(b) Each station licensee and each control operator must cooperate in selecting transmitting channels and in making the most effective use of the amateur service frequencies. No frequency will be assigned for the exclusive use of any station.

(c) At all times and on all frequencies, each control operator must give priority to stations providing emergency communications, except to stations transmitting communications for training drills and tests in RACES.

(d) No amateur operator shall willfully or maliciously interfere with or cause interference to any radio communication or signal.

§ 97.103 Station licensee responsibilities.

(a) The station licensee is responsible for the proper operation of the station in accordance with the FCC Rules. When the control operator is a different amateur operator than the station licensee, both persons are equally responsible for proper operation of the station.

(b) The station licensee must designate the station control operator. The FCC will presume that the station licensee is also the control operator, unless documentation to the contrary is in the station records.

(c) The station licensee must make the station and the station records available for inspection upon request by an FCC representative.

[54 FR 25857, June 20, 1989, as amended at 71 FR 66462, Nov. 15, 2006; 75 FR 27201, May 14, 2010]

§ 97.105 Control operator duties.

(a) The control operator must ensure the immediate proper operation of the station, regardless of the type of control.

(b) A station may only be operated in the manner and to the extent permitted by the privileges authorized for the class of operator license held by the control operator.

§ 97.107 Reciprocal operating authority.

A non-citizen of the United States (''alien'') holding an amateur service authorization granted by the alien's government is authorized to be the control operator of an amateur station located at places where the amateur service is regulated by the FCC, provided there is in effect a multilateral or bilateral reciprocal operating arrangement, to which the United States and the alien's government are parties, for amateur service operation on a reciprocal basis. The FCC will issue public announcements listing the countries with which the United States has such an arrangement. No citizen of the United States or person holding an FCC amateur operator/primary station license grant is eligible for the reciprocal operating authority granted by this section. The privileges granted to a control operator under this authorization are:

(a) For an amateur service license granted by the Government of Canada:

(1) The terms of the *Convention Between the United States and Canada* (TIAS No. 2508) *Relating to the Operation by Citizens of Either Country of Certain Radio Equipment or Stations in the Other Country;*

(2) The operating terms and conditions of the amateur service license issued by the Government of Canada; and

(3) The applicable rules of this part, but not to exceed the control operator privileges of an FCC-granted Amateur Extra Class operator license.

(b) For an amateur service license granted by any country, other than Canada, with which the United States has a multilateral or bilateral agreement:

(1) The terms of the agreement between the alien's government and the United States;

(2) The operating terms and conditions of the amateur service license granted by the alien's government;

(3) The applicable rules of this part, but not to exceed the control operator privileges of an FCC-granted Amateur Extra Class operator license; and

(c) At any time the FCC may, in its discretion, modify, suspend or cancel the reciprocal operating authority granted to any person by this section.

[63 FR 68979, Dec. 14, 1998]

§ 97.109 Station control.

(a) Each amateur station must have at least one control point.

(b) When a station is being locally controlled, the control operator must be at the control point. Any station may be locally controlled.

(c) When a station is being remotely controlled, the control operator must be at the control point. Any station may be remotely controlled.

(d) When a station is being automatically controlled, the control operator need not be at the control point. Only stations specifically designated elsewhere in this part may be automatically controlled. Automatic control must cease upon notification by a District Director that the station is transmitting improperly or causing harmful

interference to other stations. Automatic control must not be resumed without prior approval of the District Director.

[54 FR 39535, Sept. 27, 1989, as amended at 60 FR 26001, May 16, 1995; 69 FR 24997, May 5, 2004]

§ 97.111 Authorized transmissions.

(a) An amateur station may transmit the following types of two-way communications:

(1) Transmissions necessary to exchange messages with other stations in the amateur service, except those in any country whose administration has notified the ITU that it objects to such communications. The FCC will issue public notices of current arrangements for international communications.

(2) Transmissions necessary to meet essential communication needs and to facilitate relief actions.

(3) Transmissions necessary to exchange messages with a station in another FCC-regulated service while providing emergency communications;

(4) Transmissions necessary to exchange messages with a United States government station, necessary to providing communications in RACES; and

(5) Transmissions necessary to exchange messages with a station in a service not regulated by the FCC, but authorized by the FCC to communicate with amateur stations. An amateur station may exchange messages with a participating United States military station during an Armed Forces Day Communications Test.

(b) In addition to one-way transmissions specifically authorized elsewhere in this part, an amateur station may transmit the following types of one-way communications:

(1) Brief transmissions necessary to make adjustments to the station;

(2) Brief transmissions necessary to establishing two-way communications with other stations;

(3) Telecommand;

(4) Transmissions necessary to providing emergency communications;

(5) Transmissions necessary to assisting persons learning, or improving proficiency in, the international Morse code; and

(6) Transmissions necessary to disseminate information bulletins.

(7) Transmissions of telemetry.

[54 FR 25857, June 20, 1989, as amended at 56 FR 56171, Nov. 1, 1991; 71 FR 25982, May 3, 2006; 71 FR 66462, Nov. 15, 2006]

§ 97.113 Prohibited transmissions.

(a) No amateur station shall transmit:

(1) Communications specifically prohibited elsewhere in this part;

(2) Communications for hire or for material compensation, direct or indirect, paid or promised, except as otherwise provided in these rules;

(3) Communications in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer, with the following exceptions:

(i) A station licensee or station control operator may participate on behalf of an employer in an emergency preparedness or disaster readiness test or drill, limited to the duration and scope of such test or drill, and operational testing immediately prior to such test or drill. Tests or drills that are not government-sponsored are limited to a total time of one hour per week; except that no more than twice in any calendar year, they may be conducted for a period not to exceed 72 hours.

(ii) An amateur operator may notify other amateur operators of the availability for sale or trade of apparatus normally used in an amateur station, provided that such activity is not conducted on a regular basis.

(iii) A control operator may accept compensation as an incident of a teaching position during periods of time when an amateur station is used by that teacher as a part of classroom instruction at an educational institution.

(iv) The control operator of a club station may accept compensation for the periods of time when the station is transmitting telegraphy practice or information bulletins, provided that the station transmits such telegraphy practice and bulletins for at least 40 hours per week; schedules operations on at least six amateur service MF and HF bands using reasonable measures to maximize coverage; where the schedule of normal operating times and frequencies is published at least 30 days in advance of the actual transmissions; and where the control operator does

not accept any direct or indirect compensation for any other service as a control operator.

(4) Music using a phone emission except as specifically provided elsewhere in this section; communications intended to facilitate a criminal act; messages encoded for the purpose of obscuring their meaning, except as otherwise provided herein; obscene or indecent words or language; or false or deceptive messages, signals or identification.

(5) Communications, on a regular basis, which could reasonably be furnished alternatively through other radio services.

(b) An amateur station shall not engage in any form of broadcasting, nor may an amateur station transmit one-way communications except as specifically provided in these rules; nor shall an amateur station engage in any activity related to program production or news gathering for broadcasting purposes, except that communications directly related to the immediate safety of human life or the protection of property may be provided by amateur stations to broadcasters for dissemination to the public where no other means of communication is reasonably available before or at the time of the event.

(c) No station shall retransmit programs or signals emanating from any type of radio station other than an amateur station, except propagation and weather forecast information intended for use by the general public and originated from United States Government stations, and communications, including incidental music, originating on United States Government frequencies between a manned spacecraft and its associated Earth stations. Prior approval for manned spacecraft communications retransmissions must be obtained from the National Aeronautics and Space Administration. Such retransmissions must be for the exclusive use of amateur radio operators. Propagation, weather forecasts, and manned spacecraft communications retransmissions may not be conducted on a regular basis, but only occasionally, as an incident of normal amateur radio communications.

(d) No amateur station, except an auxiliary, repeater, or space station, may automatically retransmit the radio signals of other amateur station.

[58 FR 43072, Aug. 13, 1993; 58 FR 47219, Sept. 8, 1993, as amended at 71 FR 25982, May 3, 2006; 71 FR 66462, Nov. 15, 2006; 75 FR 46857, Aug. 4, 2010; 79 FR 35291, June 20, 2014]

§ 97.115 Third party communications.

(a) An amateur station may transmit messages for a third party to:

(1) Any station within the jurisdiction of the United States.

(2) Any station within the jurisdiction of any foreign government when transmitting emergency or disaster relief communications and any station within the jurisdiction of any foreign government whose administration has made arrangements with the United States to allow amateur stations to be used for transmitting international communications on behalf of third parties. No station shall transmit messages for a third party to any station within the jurisdiction of any foreign government whose administration has not made such an arrangement. This prohibition does not apply to a message for any third party who is eligible to be a control operator of the station.

(b) The third party may participate in stating the message where:

(1) The control operator is present at the control point and is continuously monitoring and supervising the third party's participation; and

(2) The third party is not a prior amateur service licensee whose license was revoked or not renewed after hearing and re-licensing has not taken place; suspended for less than the balance of the license term and the suspension is still in effect; suspended for the balance of the license term and re-licensing has not taken place; or surrendered for cancellation following notice of revocation, suspension or monetary forfeiture proceedings. The third party may not be the subject of a cease and desist order which relates to amateur service operation and which is still in effect.

(c) No station may transmit third party communications while being automatically controlled except a station transmitting a RTTY or data emission.

(d) At the end of an exchange of international third party communications, the station must also transmit in the station identification procedure the call sign of the station with which a third party message was exchanged.

[54 FR 25857, June 20, 1989; 54 FR 39535, Sept. 27, 1989, as amended at 71 FR 25982, May 3, 2006; 71 FR 66462, Nov. 15, 2006]

§ 97.117 International communications.

Transmissions to a different country, where permitted, shall be limited to communications incidental to the purposes of the amateur service and to remarks of a personal character.

[71 FR 25982, May 3, 2006]

§ 97.119 Station identification.

(a) Each amateur station, except a space station or telecommand station, must transmit its assigned call sign on its transmitting channel at the end of each communication, and at least every 10 minutes during a communication, for the purpose of clearly making the source of the transmissions from the station known to those receiving the transmissions. No station may transmit unidentified communications or signals, or transmit as the station call sign, any call sign not authorized to the station.

(b) The call sign must be transmitted with an emission authorized for the transmitting channel in one of the following ways:

(1) By a CW emission. When keyed by an automatic device used only for identification, the speed must not exceed 20 words per minute;

(2) By a phone emission in the English language. Use of a phonetic alphabet as an aid for correct station identification is encouraged;

(3) By a RTTY emission using a specified digital code when all or part of the communications are transmitted by a RTTY or data emission;

(4) By an image emission conforming to the applicable transmission standards, either color or monochrome, of § 73.682(a) of the FCC Rules when all or part of the communications are transmitted in the same image emission

(c) One or more indicators may be included with the call sign. Each indicator must be separated from the call sign by the slant mark (/) or by any suitable word that denotes the slant mark. If an indicator is self-assigned, it must be included before, after, or both before and after, the call sign. No self-assigned indicator may conflict with any other indicator specified by the FCC Rules or with any prefix assigned to another country.

(d) When transmitting in conjunction with an event of special significance, a station may substitute for its assigned call sign a special event call sign as shown for that station for that period of time on the common data base coordinated, maintained and disseminated by the special event call sign data base coordinators. Additionally, the station must transmit its assigned call sign at least once per hour during such transmissions.

(e) When the operator license class held by the control operator exceeds that of the station licensee, an indicator consisting of the call sign assigned to the control operator's station must be included after the call sign.

(f) When the control operator is a person who is exercising the rights and privileges authorized by § 97.9(b) of this part, an indicator must be included after the call sign as follows:

(1) For a control operator who has requested a license modification from Novice Class to Technical Class: KT;

(2) For a control operator who has requested a license modification from Novice or Technician to General Class: AG;

(3) For a control operator who has requested a license modification from Novice, Technician, General, or Advanced Class to Amateur Extra Class: AE.

(g) When the station is transmitting under the authority of § 97.107 of this part, an indicator consisting of the appropriate letter-numeral designating the station location must be included before the call sign that was issued to the station by the country granting the license. For an amateur service license granted by the Government of Canada, however, the indicator must be included after the call sign. At least once during each intercommunication, the identification announcement must include the geographical location as

nearly as possible by city and state, commonwealth or possession.

[54 FR 25857, June 20, 1989, as amended at 54 FR 39535, Sept. 27, 1989; 55 FR 30457, July 26, 1990; 56 FR 28, Jan. 2, 1991; 62 FR 17567, Apr. 10, 1997; 63 FR 68980, Dec. 14, 1998; 64 FR 51471, Sept. 23, 1999; 66 FR 20752, Apr. 25, 2001; 75 FR 78171, Dec. 15, 2010]

§ 97.121 Restricted operation.

(a) If the operation of an amateur station causes general interference to the reception of transmissions from stations operating in the domestic broadcast service when receivers of good engineering design, including adequate selectivity characteristics, are used to receive such transmissions, and this fact is made known to the amateur station licensee, the amateur station shall not be operated during the hours from 8 p.m. to 10:30 p.m., local time, and on Sunday for the additional period from 10:30 a.m. until 1 p.m., local time, upon the frequency or frequencies used when the interference is created.

(b) In general, such steps as may be necessary to minimize interference to stations operating in other services may be required after investigation by the FCC.

Subpart C—Special Operations

§ 97.201 Auxiliary station.

(a) Any amateur station licensed to a holder of a Technician, General, Advanced or Amateur Extra Class operator license may be an auxiliary station. A holder of a Technician, General, Advanced or Amateur Extra Class operator license may be the control operator of an auxiliary station, subject to the privileges of the class of operator license held.

(b) An auxiliary station may transmit only on the 2 m and shorter wavelength bands, except the 144.0–144.5 MHz, 145.8–146.0 MHz, 219–220 MHz, 222.00–222.15 MHz, 431–433 MHz, and 435–438 MHz segments.

(c) Where an auxiliary station causes harmful interference to another auxiliary station, the licensees are equally and fully responsible for resolving the interference unless one station's operation is recommended by a frequency coordinator and the other station's is not. In that case, the licensee of the non-coordinated auxiliary station has primary responsibilty to resolve the interference.

(d) An auxiliary station may be automatically controlled.

(e) An auxiliary station may transmit one-way communications.

[54 FR 25857, June 20, 1989, as amended at 56 FR 56171, Nov. 1, 1991; 60 FR 15687, Mar. 27, 1995; 63 FR 68980, Dec. 14, 1998; 71 FR 66462, Nov. 15, 2006; 75 FR 78171, Dec. 15, 2010]

§ 97.203 Beacon station.

(a) Any amateur station licensed to a holder of a Technician, General, Advanced or Amateur Extra Class operator license may be a beacon. A holder of a Technician, General, Advanced or Amateur Extra Class operator license may be the control operator of a beacon, subject to the privileges of the class of operator license held.

(b) A beacon must not concurrently transmit on more than 1 channel in the same amateur service frequency band, from the same station location.

(c) The transmitter power of a beacon must not exceed 100 W.

(d) A beacon may be automatically controlled while it is transmitting on the 28.20–28.30 MHz, 50.06–50.08 MHz, 144.275–144.300 MHz, 222.05–222.06 MHz or 432.300–432.400 MHz segments, or on the 33 cm and shorter wavelength bands.

(e) Before establishing an automatically controlled beacon in the National Radio Quiet Zone or before changing the transmitting frequency, transmitter power, antenna height or directivity, the station licensee must give written notification thereof to the Interference Office, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, WV 24944.

(1) The notification must include the geographical coordinates of the antenna, antenna ground elevation above mean sea level (AMSL), antenna center of radiation above ground level (AGL), antenna directivity, proposed frequency, type of emission, and transmitter power.

(2) If an objection to the proposed operation is received by the FCC from the National Radio Astronomy Observatory at Green Bank, Pocahontas County, WV, for itself or on behalf of the Naval Research Laboratory at

Sugar Grove, Pendleton County, WV, within 20 days from the date of notification, the FCC will consider all aspects of the problem and take whatever action is deemed appropriate.

(f) A beacon must cease transmissions upon notification by a District Director that the station is operating improperly or causing undue interference to other operations. The beacon may not resume transmitting without prior approval of the District Director.

(g) A beacon may transmit one-way communications.

[54 FR 25857, June 20, 1989, as amended at 55 FR 9323, Mar. 13, 1990; 56 FR 19610, Apr. 29, 1991; 56 FR 32517, July 17, 1991; 62 FR 55536, Oct. 27, 1997; 63 FR 41204, Aug. 3, 1998; 63 FR 68980, Dec. 14, 1998; 69 FR 24997, May 5, 2004; 71 FR 66462, Nov. 15, 2006; 75 FR 78171, Dec. 15, 2010]

§ 97.205 Repeater station.

(a) Any amateur station licensed to a holder of a Technician, General, Advanced or Amateur Extra Class operator license may be a repeater. A holder of a Technician, General, Advanced or Amateur Extra Class operator license may be the control operator of a repeater, subject to the privileges of the class of operator license held.

(b) A repeater may receive and retransmit only on the 10 m and shorter wavelength frequency bands except the 28.0–29.5 MHz, 50.0–51.0 MHz, 144.0–144.5 MHz, 145.5–146.0 MHz, 222.00–222.15 MHz, 431.0–433.0 Mhz, and 435.0–438.0 Mhz segments.

(c) Where the transmissions of a repeater cause harmful interference to another repeater, the two station licensees are equally and fully responsible for resolving the interference unless the operation of one station is recommended by a frequency coordinator and the operation of the other station is not. In that case, the licensee of the non-coordinated repeater has primary responsibility to resolve the interference.

(d) A repeater may be automatically controlled.

(e) Ancillary functions of a repeater that are available to users on the input channel are not considered remotely controlled functions of the station. Limiting the use of a repeater to only certain user stations is permissible.

(f) [Reserved]

(g) The control operator of a repeater that retransmits inadvertently communications that violate the rules in this part is not accountable for the violative communications.

(h) The provisions of this paragraph do not apply to repeaters that transmit on the 1.2 cm or shorter wavelength bands. Before establishing a repeater within 16 km (10 miles) of the Arecibo Observatory or before changing the transmitting frequency, transmitter power, antenna height or directivity of an existing repeater, the station licensee must give written notification thereof to the Interference Office, Arecibo Observatory, HC3 Box 53995, Arecibo, Puerto Rico 00612, in writing or electronically, of the technical parameters of the proposal. Licensees who choose to transmit information electronically should e-mail to: *prcz@naic.edu*.

(1) The notification shall state the geographical coordinates of the antenna (NAD–83 datum), antenna height above mean sea level (AMSL), antenna center of radiation above ground level (AGL), antenna directivity and gain, proposed frequency and FCC Rule Part, type of emission, effective radiated power, and whether the proposed use is itinerant. Licensees may wish to consult interference guidelines provided by Cornell University.

(2) If an objection to the proposed operation is received by the FCC from the Arecibo Observatory, Arecibo, Puerto Rico, within 20 days from the date of notification, the FCC will consider all aspects of the problem and take whatever action is deemed appropriate. The licensee will be required to make reasonable efforts in order to resolve or mitigate any potential interference problem with the Arecibo Observatory.

[54 FR 25857, June 20, 1989, as amended at 55 FR 4613, Feb. 9, 1990; 56 FR 32517, July 17, 1991; 58 FR 64385, Dec. 7, 1993; 59 FR 18975, Apr. 21, 1994; 62 FR 55536, Oct. 27, 1997; 63 FR 41205, Aug. 3, 1998; 63 FR 68980, Dec. 14, 1998; 69 FR 24997, May 5, 2004; 70 FR 31374, June 1, 2005]

§ 97.207 Space station.

(a) Any amateur station may be a space station. A holder of any class operator license may be the control operator of a space station, subject to the privileges of the class of operator license held by the control operator.

(b) A space station must be capable of effecting a cessation of transmissions by telecommand whenever such cessation is ordered by the FCC.

(c) The following frequency bands and segments are authorized to space stations:

(1) The 17 m, 15 m, 12 m, and 10 m bands, 6 mm, 4 mm, 2 mm and 1 mm bands; and

(2) The 7.0–7.1 MHz, 14.00–14.25 MHz, 144–146 MHz, 435–438 MHz, 2400–2450 MHz, 3.40–3.41 GHz, 5.83–5.85 GHz, 10.45–10.50 GHz, and 24.00–24.05 GHz segments.

(d) A space station may automatically retransmit the radio signals of Earth stations and other space stations.

(e) A space station may transmit one-way communications.

(f) Space telemetry transmissions may consist of specially coded messages intended to facilitate communications or related to the function of the spacecraft.

(g) The license grantee of each space station must make the following written notifications to the International Bureau, FCC, Washington, DC 20554.

(1) A pre-space notification within 30 days after the date of launch vehicle determination, but no later than 90 days before integration of the space station into the launch vehicle. The notification must be in accordance with the provisions of Articles 9 and 11 of the International Telecommunication Union (ITU) Radio Regulations and must specify the information required by Appendix 4 and Resolution No. 642 of the ITU Radio Regulations. The notification must also include a description of the design and operational strategies that the space station will use to mitigate orbital debris, including the following information:

(i) A statement that the space station licensee has assessed and limited the amount of debris released in a planned manner during normal operations, and has assessed and limited the probability of the space station becoming a source of debris by collisions with small debris or meteoroids that could cause loss of control and prevent post-mission disposal;

(ii) A statement that the space station licensee has assessed and limited the probability of accidental explosions during and after completion of mission operations. This statement must include a demonstration that debris generation will not result from the conversion of energy sources on board the spacecraft into energy that fragments the spacecraft. Energy sources include chemical, pressure, and kinetic energy. This demonstration should address whether stored energy will be removed at the spacecraft's end of life, by depleting residual fuel and leaving all fuel line valves open, venting any pressurized system, leaving all batteries in a permanent discharge state, and removing any remaining source of stored energy, or through other equivalent procedures specifically disclosed in the application;

(iii) A statement that the space station licensee has assessed and limited the probability of the space station becoming a source of debris by collisions with large debris or other operational space stations. Where a space station will be launched into a low-Earth orbit that is identical, or very similar, to an orbit used by other space stations, the statement must include an analysis of the potential risk of collision and a description of what measures the space station operator plans to take to avoid in-orbit collisions. If the space station licensee is relying on coordination with another system, the statement must indicate what steps have been taken to contact, and ascertain the likelihood of successful coordination of physical operations with, the other system. The statement must disclose the accuracy—if any—with which orbital parameters of non-geostationary satellite orbit space stations will be maintained, including apogee, perigee, inclination, and the right ascension of the ascending node(s). In the event that a system is not able to maintain orbital tolerances, *i.e.*, it lacks a propulsion system for orbital maintenance, that fact should be included in the debris mitigation disclosure. Such systems must also indicate the anticipated evolution

over time of the orbit of the proposed satellite or satellites. Where a space station requests the assignment of a geostationary-Earth orbit location, it must assess whether there are any known satellites located at, or reasonably expected to be located at, the requested orbital location, or assigned in the vicinity of that location, such that the station keeping volumes of the respective satellites might overlap. If so, the statement must include a statement as to the identities of those parties and the measures that will be taken to prevent collisions;

(iv) A statement detailing the post-mission disposal plans for the space station at end of life, including the quantity of fuel—if any—that will be reserved for post-mission disposal maneuvers. For geostationary-Earth orbit space stations, the statement must disclose the altitude selected for a post-mission disposal orbit and the calculations that are used in deriving the disposal altitude. The statement must also include a casualty risk assessment if planned post-mission disposal involves atmospheric re-entry of the space station. In general, an assessment should include an estimate as to whether portions of the spacecraft will survive re-entry and reach the surface of the Earth, as well as an estimate of the resulting probability of human casualty.

(v) If any material item described in this notification changes before launch, a replacement pre-space notification shall be filed with the International Bureau no later than 90 days before integration of the space station into the launch vehicle.

(2) An in-space station notification is required no later than 7 days following initiation of space station transmissions. This notification must update the information contained in the pre-space notification.

(3) A post-space station notification is required no later than 3 months after termination of the space station transmissions. When termination of transmissions is ordered by the FCC, the notification is required no later than 24 hours after termination of transmissions.

[54 FR 25857, June 20, 1989, as amended at 54 FR 39535, Sept. 27, 1989; 56 FR 56171, Nov. 1, 1991; 57 FR 32736, July 23, 1992; 60 FR 50124, Sept. 28, 1995; 63 FR 68980, Dec. 14, 1998; 69 FR 54588, Sept. 9, 2004; 71 FR 66462, Nov. 15, 2006; 75 FR 27201, May 14, 2010]

§ 97.209 Earth station.

(a) Any amateur station may be an Earth station. A holder of any class operator license may be the control operator of an Earth station, subject to the privileges of the class of operator license held by the control operator.

(b) The following frequency bands and segments are authorized to Earth stations:

(1) The 17 m, 15 m, 12 m, and 10 m bands, 6 mm, 4 mm, 2 mm and 1 mm bands; and

(2) The 7.0–7.1 MHz, 14.00–14.25 MHz, 144–146 MHz, 435–438 MHz, 1260–1270 MHz and 2400–2450 MHz, 3.40–3.41 GHz, 5.65–5.67 GHz, 10.45–10.50 GHz and 24.00–24.05 GHz segments.

[54 FR 25857, June 20, 1989, as amended at 54 FR 39535, Sept. 27, 1989]

§ 97.211 Space telecommand station.

(a) Any amateur station designated by the licensee of a space station is eligible to transmit as a telecommand station for that space station, subject to the privileges of the class of operator license held by the control operator.

(b) A telecommand station may transmit special codes intended to obscure the meaning of telecommand messages to the station in space operation.

(c) The following frequency bands and segments are authorized to telecommand stations:

(1) The 17 m, 15 m, 12 m and 10 m bands, 6 mm, 4 mm, 2 mm and 1 mm bands; and

(2) The 7.0–7.1 MHz, 14.00–14.25 MHz, 144–146 MHz, 435–438 MHz, 1260–1270 MHz and 2400–2450 MHz, 3.40–3.41 GHz, 5.65–5.67 GHz, 10.45–10.50 GHz and 24.00–24.05 GHz segments.

(d) A telecommand station may transmit one-way communications.

[54 FR 25857, June 20, 1989, as amended at 54 FR 39535, Sept. 27, 1989; 56 FR 56171, Nov. 1, 1991]

§ 97.213 Telecommand of an amateur station.

An amateur station on or within 50 km of the Earth's surface may be under telecommand where:

(a) There is a radio or wireline control link between the control point and the station sufficient for the control operator to perform his/her duties. If radio, the control link must use an auxiliary station. A control link using a fiber optic cable or another telecommunication service is considered wireline.

(b) Provisions are incorporated to limit transmission by the station to a period of no more than 3 minutes in the event of malfunction in the control link.

(c) The station is protected against making, willfully or negligently, unauthorized transmissions.

(d) A photocopy of the station license and a label with the name, address, and telephone number of the station licensee and at least one designated control operator is posted in a conspicuous place at the station location.

[54 FR 25857, June 20, 1989, as amended at 56 FR 56171, Nov. 1, 1991]

§ 97.215 Telecommand of model craft.

An amateur station transmitting signals to control a model craft may be operated as follows:

(a) The station identification procedure is not required for transmissions directed only to the model craft, provided that a label indicating the station call sign and the station licensee's name and address is affixed to the station transmitter.

(b) The control signals are not considered codes or ciphers intended to obscure the meaning of the communication.

(c) The transmitter power must not exceed 1 W.

[54 FR 25857, June 20, 1989, as amended at 56 FR 56171, Nov. 1, 1991]

§ 97.217 Telemetry.

Telemetry transmitted by an amateur station on or within 50 km of the Earth's surface is not considered to be codes or ciphers intended to obscure the meaning of communications.

[56 FR 56172, Nov. 1, 1991. Redesignated at 59 FR 18975, Apr. 21, 1994]

§ 97.219 Message forwarding system.

(a) Any amateur station may participate in a message forwarding system, subject to the privileges of the class of operator license held.

(b) For stations participating in a message forwarding system, the control operator of the station originating a message is primarily accountable for any violation of the rules in this part contained in the message.

(c) Except as noted in (d) of this section, for stations participating in a message forwarding system, the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence.

(d) For stations participating in a message forwarding system, the control operator of the first forwarding station must:

(1) Authenticate the identity of the station from which it accepts communications on behalf of the system; or

(2) Accept accountability for any violation of the rules in this part contained in messages it retransmits to the system.

[59 FR 18975, Apr. 21, 1994]

§ 97.221 Automatically controlled digital station.

(a) This rule section does not apply to an auxiliary station, a beacon station, a repeater station, an earth station, a space station, or a space telecommand station.

(b) A station may be automatically controlled while transmitting a RTTY or data emission on the 6 m or shorter wavelength bands, and on the 28.120–28.189 MHz, 24.925–24.930 MHz, 21.090–21.100 MHz, 18.105–18.110 MHz, 14.0950–14.0995 MHz, 14.1005–14.112 MHz, 10.140–10.150 MHz, 7.100–7.105 MHz, or 3.585–3.600 MHz segments.

(c) Except for channels specified in § 97.303(h), a station may be automatically controlled while transmitting a RTTY or data emission on any other frequency authorized for such emission types provided that:

(1) The station is responding to interrogation by a station under local or remote control; and

(2) No transmission from the automatically controlled station occupies a bandwidth of more than 500 Hz.

[60 FR 26001, May 16, 1995, as amended at 72 FR 3082, Jan. 24, 2007; 77 FR 5412, Feb. 3, 2012]

Subpart D—Technical Standards

§ 97.301 Authorized frequency bands.

The following transmitting frequency bands are available to an amateur station located within 50 km of the Earth's surface, within the specified ITU Region, and outside any area where the amateur service is regulated by any authority other than the FCC.

(a) For a station having a control operator who has been granted a Technician, General, Advanced, or Amateur Extra Class operator license or who holds a CEPT radio-amateur license or IARP of any class:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (paragraph)
VHF	MHz	MHz	MHz	
6 m		50–54	50–54	(a)
2 m	144–146	144–148	144–148	(a), (k)
1.25 m		219–220		(l)
Do		222–225		(a)
UHF	MHz	MHz	MHz	
70 cm	430–440	420–450	430–440	(a), (b), (m)
33 cm		902–928		(a), (b), (e), (n)
23 cm	1240–1300	1240–1300	1240–1300	(b), (d), (o)
13 cm	2300–2310	2300–2310	2300–2310	(d), (p)
Do	2390–2450	2390–2450	2390–2450	(d), (e), (p)
SHF	GHz	GHz	GHz	
9 cm		3.3–3.5	3.3–3.5	(a), (b), (f), (q)
5 cm	5.650–5.850	5.650–5.925	5.650–5.850	(a), (b), (e), (r)
3 cm	10.0–10.5	10.0–10.5	10.0–10.5	(a), (b), (k)
1.2 cm	24.00–24.25	24.00–24.25	24.00–24.25	(b), (d), (e)
EHF	GHz	GHz	GHz	
6 mm	47.0–47.2	47.0–47.2	47.0–47.2	
4 mm	76–81	76–81	76–81	(c), (f), (s)
2.5 mm	122.25–123.00	122.25–123.00	122.25–123.00	(e), (t)
2 mm	134–141	134–141	134–141	(c), (f)
1 mm	241–250	241–250	241–250	(c), (e), (f)
	Above 275	Above 275	Above 275	(f)

(b) For a station having a control operator who has been granted an Amateur Extra Class operator license, who holds a CEPT radio amateur license, or who holds a Class 1 IARP license:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (paragraph)
MF	kHz	kHz	kHz	
160 m	1810–1850	1800–2000	1800–2000	(a), (c), (g)
HF	MHz	MHz	MHz	
80 m	3.500–3.600	3.500–3.600	3.500–3.600	(a)
75 m	3.600–3.800	3.600–4.000	3.600–3.900	(a)
60 m		See § 97.303(h)		(h)
40 m	7.000–7.200	7.000–7.300	7.000–7.200	(i)
30 m	10.100–10.150	10.100–10.150	10.100–10.150	(j)
20 m	14.000–14.350	14.000–14.350	14.000–14.350	
17 m	18.068–18.168	18.068–18.168	18.068–18.168	

HF	MHz	MHz	MHz	
15 m	21.000–21.450	21.000–21.450	21.000–21.450	
12 m	24.890–24.990	24.890–24.990	24.890–24.990	
10 m	28.000–29.700	28.000–29.700	28.000–29.700	

(c) For a station having a control operator who has been granted an operator license of Advanced Class:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (Paragraph)
MF	kHz	kHz	kHz	
160 m	1810–1850	1800–2000	1800–2000	(a), (c), (g)
HF	MHz	MHz	MHz	
80 m	3.525–3.600	3.525–3.600	3.525–3.600	(a)
75 m	3.700–3.800	3.700–4.000	3.700–3.900	(a)
60 m		See § 97.303(h)		(h)
40 m	7.025–7.200	7.025–7.300	7.025–7.200	(i)
30 m	10.100–10.150	10.100–10.150	10.100–10.150	(j)
20 m	14.025–14.150	14.025–14.150	14.025–14.150.	
Do	14.175–14.350	14.175–14.350	14.175–14.350.	
17 m	18.068–18.168	18.068–18.168	18.068–18.168.	
15 m	21.025–21.200	21.025–21.200	21.025–21.200.	
Do	21.225–21.450	21.225–21.450	21.225–21.450.	
12 m	24.890–24.990	24.890–24.990	24.890–24.990.	
10 m	28.000–29.700	28.000–29.700	28.000–29.700	

(d) For a station having a control operator who has been granted an operator license of General Class:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (paragraph)
MF	kHz	kHz	kHz	
160 m	1810–1850	1800–2000	1800–2000	(a), (c), (g)
HF	MHz	MHz	MHz	
80 m	3.525–3.600	3.525–3.600	3.525–3.600	(a)
75 m		3.800–4.000	3.800–3.900	(a)
60 m		See § 97.303(h)		(h)
40 m	7.025–7.125	7.025–7.125	7.025–7.125	(i)
Do	7.175–7.200	7.175–7.300	7.175–7.200	(i)
30 m	10.100–10.150	10.100–10.150	10.100–10.150	(j)
20 m	14.025–14.150	14.025–14.150	14.025–14.150	
Do	14.225–14.350	14.225–14.350	14.225–14.350	
17 m	18.068–18.168	18.068–18.168	18.068–18.168	
15 m	21.025–21.200	21.025–21.200	21.025–21.200	
Do	21.275–21.450	21.275–21.450	21.275–21.450	
12 m	24.890–24.990	24.890–24.990	24.890–24.990	
10 m	28.000–29.700	28.000–29.700	28.000–29.700	

(e) For a station having a control operator who has been granted an operator license of Novice Class or Technician Class:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (paragraph)
HF	MHz	MHz	MHz	
80 m	3.525–3.600	3.525–3.600	3.525–3.600	(a)
40 m	7.025–7.125	7.025–7.125	7.025–7.125	(i)
15 m	21.025–21.200	21.025–21.200	21.025–21.200	

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements *see* § 97.303 (paragraph)
HF	MHz	MHz	MHz	
10 m	28.0–28.5	28.0–28.5	28.0–28.5	
VHF	MHz	MHz	MHz	
1.25 m		222–225		(a)
UHF	MHz	MHz	MHz	
23 cm	1270–1295	1270–1295	1270–1295	(d), (o)

[75 FR 27201, May 14, 2010, as amended at 75 FR 78171, Dec. 15, 2010]

§ 97.303 Frequency sharing requirements.

The following paragraphs summarize the frequency sharing requirements that apply to amateur stations transmitting in the frequency bands specified in § 97.301 of this part. Each frequency band allocated to the amateur service is designated as either a secondary service or a primary service. A station in a secondary service must not cause harmful interference to, and must accept interference from, stations in a primary service.

(a) Where, in adjacent ITU Regions or sub-Regions, a band of frequencies is allocated to different services of the same category (*i.e.*, primary or secondary services), the basic principle is the equality of right to operate. Accordingly, stations of each service in one Region or sub-Region must operate so as not to cause harmful interference to any service of the same or higher category in the other Regions or sub-Regions.

(b) Amateur stations transmitting in the 70 cm band, the 33 cm band, the 23 cm band, the 9 cm band, the 5 cm band, the 3 cm band, or the 24.05–24.25 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the United States Government in the radiolocation service.

(c) Amateur stations transmitting in the 1900–2000 kHz segment, the 76–77.5 GHz segment, the 78–81 GHz segment, the 136–141 GHz segment, or the 241–248 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the United States Government, the FCC, or other nations in the radiolocation service.

(d) Amateur stations transmitting in the 430–450 MHz segment, the 23 cm band, the 3.3–3.4 GHz segment, the 5.65–5.85 GHz segment, the 13 cm band, or the 24.05–24.25 GHz segment, must not cause harmful interference to, and must accept interference from, stations authorized by other nations in the radiolocation service.

(e) Amateur stations receiving in the 33 cm band, the 2400–2450 MHz segment, the 5.725–5.875 GHz segment, the 1.2 cm band, the 2.5 mm band, or the 244–246 GHz segment must accept interference from industrial, scientific, and medical (ISM) equipment.

(f) Amateur stations transmitting in the following segments must not cause harmful interference to radio astronomy stations: 3.332–3.339 GHz, 3.3458–3.3525 GHz, 76–77.5 GHz, 78–81 GHz, 136–141 GHz, 241–248 GHz, 275–323 GHz, 327–371 GHz, 388–424 GHz, 426–442 GHz, 453–510 GHz, 623–711 GHz, 795–909 GHz, or 926–945 GHz. In addition, amateur stations transmitting in the following segments must not cause harmful interference to stations in the Earth exploration-satellite service (passive) or the space research service (passive): 275–277 GHz, 294–306 GHz, 316–334 GHz, 342–349 GHz, 363–365 GHz, 371–389 GHz, 416–434 GHz, 442–444 GHz, 496–506 GHz, 546–568 GHz, 624–629 GHz, 634–654 GHz, 659–661 GHz, 684–692 GHz, 730–732 GHz, 851–853 GHz, or 951–956 GHz.

(g) Amateur stations transmitting in the 1900–2000 kHz segment must not cause harmful interference to, and must accept interference from, stations authorized by other nations in the fixed, mobile except aeronautical mobile, and radionavigation services.

(h) *60 m band:* (1) In the 5330.5–5406.4 kHz band (60 m band), amateur stations may transmit only on the five center frequencies specified in the table below. In order to meet this requirement, control operators of stations transmitting phone, data, and RTTY emissions (emission designators 2K80J3E, 2K80J2D, and 60H0J2B, respectively) may set the carrier frequency 1.5 kHz below the center frequency as specified in the table below. For CW emissions (emission designator 150HA1A), the carrier frequency is set to the center frequency. Amateur operators shall ensure that their emissions do not occupy more than 2.8 kHz centered on each of these center frequencies.

60 M BAND FREQUENCIES (KHZ)

Carrier	Center
5330.5	5332.0
5346.5	5348.0
5357.0	5358.5
5371.5	5373.0
5403.5	5405.0

(2) Amateur stations transmitting on the 60 m band must not cause harmful interference to, and must accept interference from, stations authorized by:

(i) The United States (NTIA and FCC) and other nations in the fixed service; and

(ii) Other nations in the mobile except aeronautical mobile service.

(i) Amateur stations transmitting in the 7.2–7.3 MHz segment must not cause harmful interference to, and must accept interference from, international broadcast stations whose programming is intended for use within Region 1 or Region 3.

(j) Amateur stations transmitting in the 30 m band must not cause harmful interference to, and must accept interference from, stations by other nations in the fixed service. The licensee of the amateur station must make all necessary adjustments, including termination of transmissions, if harmful interference is caused.

(k) For amateur stations located in ITU Regions 1 and 3: Amateur stations transmitting in the 146–148 MHz segment or the 10.00–10.45 GHz segment must not cause harmful interference to, and must accept interference from, stations of other nations in the fixed and mobile services.

(l) *In the 219–220 MHz segment:*

(1) Use is restricted to amateur stations participating as forwarding stations in fixed point-to-point digital message forwarding systems, including intercity packet backbone networks. It is not available for other purposes.

(2) Amateur stations must not cause harmful interference to, and must accept interference from, stations authorized by:

(i) The FCC in the Automated Maritime Telecommunications System (AMTS), the 218–219 MHz Service, and the 220 MHz Service, and television stations broadcasting on channels 11 and 13; and

(ii) Other nations in the fixed and maritime mobile services.

(3) No amateur station may transmit unless the licensee has given written notification of the station's specific geographic location for such transmissions in order to be incorporated into a database that has been made available to the public. The notification must be given at least 30 days prior to making such transmissions. The notification must be given to: The American Radio Relay League, Inc., 225 Main Street, Newington, CT 06111–1494.

(4) No amateur station may transmit from a location that is within 640 km of an AMTS coast station that operates in the 217–218 MHz and 219–220 MHz bands unless the amateur station licensee has given written notification of the station's specific geographic location for such transmissions to the AMTS licensee. The notification must be given at least 30 days prior to making such transmissions. The location of AMTS coast stations using the 217–218/219–220 MHz channels may be obtained as noted in paragraph (l)(3) of this section.

(5) No amateur station may transmit from a location that is within 80 km of an AMTS coast station that uses frequencies in the 217–218 MHz and 219–220 MHz bands unless that amateur station licensee holds written approval from that AMTS licensee. The location of AMTS coast stations using the 217–218/219–220 MHz channels may be obtained as noted in paragraph (l)(3) of this section.

(m) *In the 70 cm band:*

(1) No amateur station shall transmit from north of Line A in the 420–430 MHz segment. See § 97.3(a) for the definition of Line A.

(2) Amateur stations transmitting in the 420–430 MHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the FCC in the land mobile service within 80.5 km of Buffalo, Cleveland, and Detroit. See § 2.106, footnote US230 for specific frequencies and coordinates.

(3) Amateur stations transmitting in the 420–430 MHz segment or the 440–450 MHz segment must not cause harmful interference to, and must accept interference from, stations authorized by other nations in the fixed and mobile except aeronautical mobile services.

(n) *In the 33 cm band:*

(1) Amateur stations must not cause harmful interference to, and must accept interference from, stations authorized by:

(i) The United States Government;

(ii) The FCC in the Location and Monitoring Service; and

(iii) Other nations in the fixed service.

(2) No amateur station shall transmit from those portions of Texas and New Mexico that are bounded by latitudes 31°41′ and 34°30′ North and longitudes 104°11′ and 107°30′ West; or from outside of the United States and its Region 2 insular areas.

(3) No amateur station shall transmit from those portions of Colorado and Wyoming that are bounded by latitudes 39° and 42° North and longitudes 103° and 108° West in the following segments: 902.4–902.6 MHz, 904.3–904.7 MHz, 925.3–925.7 MHz, and 927.3–927.7 MHz.

(o) Amateur stations transmitting in the 23 cm band must not cause harmful interference to, and must accept interference from, stations authorized by:

(1) The United States Government in the aeronautical radionavigation, Earth exploration-satellite (active), or space research (active) services;

(2) The FCC in the aeronautical radionavigation service; and

(3) Other nations in the Earth exploration-satellite (active), radionavigation-satellite (space-to-Earth) (space-to-space), or space research (active) services.

(p) *In the 13 cm band:*

(1) Amateur stations must not cause harmful interference to, and must accept interference from, stations authorized by other nations in fixed and mobile services.

(2) Amateur stations transmitting in the 2305–2310 MHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the FCC in the fixed, mobile except aeronautical mobile, and radiolocation services.

(q) Amateur stations transmitting in the 3.4–3.5 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by other nations in the fixed and fixed-satellite (space-to-Earth) services.

(r) *In the 5 cm band:*

(1) Amateur stations transmitting in the 5.650–5.725 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by other nations in the mobile except aeronautical mobile service.

(2) Amateur stations transmitting in the 5.850–5.925 GHz segment must not cause harmful interference to, and must accept interference from, stations authorized by the FCC and other nations in the fixed-satellite (Earth-to-space) and mobile services and also stations authorized by other nations in the fixed service. In the United States, the use of mobile service is restricted to Dedicated Short Range Communications operating in the Intelligent Transportation System.

(s) Authorization of the 76–77 GHz segment for amateur station transmissions is suspended until such time that the Commission may determine that amateur station transmissions in this segment will not pose a safety threat to vehicle radar systems operating in this segment.

(t) Amateur stations transmitting in the 2.5 mm band must not cause harmful interference to, and must accept interference from, stations authorized by the United States Government, the FCC, or other nations in the fixed, inter-satellite, or mobile services.

NOTE TO § 97.303: The Table of Frequency Allocations contains the complete, unabridged, and legally binding frequency sharing requirements that pertain to the Amateur Radio Service. *See* 47 CFR 2.104, 2.105, and 2.106. The United States, Puerto Rico, and the U.S. Virgin Islands are in Region 2 and other U.S. insular areas are in either Region 2 or 3; see appendix 1 to part 97.

[75 FR 27203, May 14, 2010, as amended at 77 FR 5412, Feb. 3, 2012]

§ 97.305 Authorized emission types.

(a) Except as specified elsewhere in this part, an amateur station may transmit a CW emission on any frequency authorized to the control operator.

(b) A station may transmit a test emission on any frequency authorized to the control operator for brief periods for experimental purposes, except that no pulse modulation emission may be transmitted on any frequency where pulse is not specifically authorized and no SS modulation emission may be transmitted on any frequency where SS is not specifically authorized.

(c) A station may transmit the following emission types on the frequencies indicated, as authorized to the control operator, subject to the standards specified in § 97.307(f) of this part.

Wavelength band	Frequencies	Emission types authorized	Standards see § 97.307(f), paragraph:
MF:			
160 m	Entire band	RTTY, data	(3).
160 m	Entire band	Phone, image	(1), (2).
HF:			
80 m	Entire band	RTTY, data	(3), (9).
75 m	Entire band	Phone, image	(1), (2).
60 m	5.332, 5.348, 5.3585, 5.373 and 5.405 MHz.	Phone, RTTY, data	(14).
40 m	7.000–7.100 MHz	RTTY, data	(3), (9)
40 m	7.075–7.100 MHz	Phone, image	(1), (2), (9), (11)
40 m	7.100–7.125 MHz	RTTY, data	(3), (9)
40 m	7.125–7.300 MHz	Phone, image	(1), (2)
30 m	Entire band	RTTY, data	(3).
20 m	14.00–14.15 MHz	RTTY, data	(3).
20 m	14.15–14.35 MHz	Phone, image	(1), (2).
17 m	18.068–18.110 MHz	RTTY, data	(3).
17 m	18.110–18.168 MHz	Phone, image	(1), (2).
15 m	21.0–21.2 MHz	RTTY, data	(3), (9).
15 m	21.20–21.45 MHz	Phone, image	(1), (2).
12 m	24.89–24.93 MHz	RTTY, data	(3).
12 m	24.93–24.99 MHz	Phone, image	(1), (2).
10 m	28.0–28.3 MHz	RTTY, data	(4).
10 m	28.3–28.5 MHz	Phone, image	(1), (2), (10).
10 m	28.5–29.0 MHz	Phone, image	(1), (2).
10 m	29.0–29.7 MHz	Phone, image	(2).
VHF:			
6 m	50.1–51.0 MHz	MCW, phone, image, RTTY, data	(2), (5).
Do	51.0–54.0 MHz	MCW, phone, image, RTTY, data, test	(2), (5), (8).
2 m	144.1–148.0 MHz	MCW, phone, image, RTTY, data, test	(2), (5), (8).
1.25 m	219–220 MHz	Data	(13)
Do	222–225 MHz	RTTY, data, test MCW, phone, SS, image	(2), (6), (8)
UHF:			
70 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(6), (8).
33 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
23 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(7), (8), and (12).
13 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
SHF:			
9 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
5 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
3 cm	Entire band	MCW, phone, image, RTTY, data, SS, test	(7), (8), and (12).
1.2 cm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
EHF:			
6 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
4 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
2.5 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
2 mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
1mm	Entire band	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).
	Above 275 GHz	MCW, phone, image, RTTY, data, SS, test, pulse	(7), (8), and (12).

[54 FR 25857, June 20, 1989; 54 FR 39536, Sept. 27, 1989; 55 FR 22013, May 30, 1990, as amended at 55 FR 30457, July 26, 1990; 60 FR 15688, Mar. 27, 1995; 64 FR 51471, Sept. 23, 1999; 71 FR 66465, Nov. 15, 2006; 75 FR 27204, May 14, 2010; 77 FR 5412, Feb. 3, 2012]

§ 97.307 Emission standards.

(a) No amateur station transmission shall occupy more bandwidth than necessary for the information rate and emission type being transmitted, in accordance with good amateur practice.

(b) Emissions resulting from modulation must be confined to the band or segment available to the control operator. Emissions outside the necessary bandwidth must not cause splatter or keyclick interference to operations on adjacent frequencies.

(c) All spurious emissions from a station transmitter must be reduced to the greatest extent practicable. If any spurious emission, including chassis or power line radiation, causes harmful interference to the reception of another radio station, the licensee of the interfering amateur station is required to take steps to eliminate the interference, in accordance with good engineering practice.

(d) For transmitters installed after January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency below 30 MHz must be at least 43 dB below the mean power of the fundamental emission. For transmitters installed on or before January 1, 2003, the mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency below 30 MHz must not exceed 50 mW and must be at least 40 dB below the mean power of the fundamental emission. For a transmitter of mean power less than 5 W installed on or before January 1, 2003, the attenuation must be at least 30 dB. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

(e) The mean power of any spurious emission from a station transmitter or external RF power amplifier transmitting on a frequency between 30–225 MHz must be at least 60 dB below the mean power of the fundamental. For a transmitter having a mean power of 25 W or less, the mean power of any spurious emission supplied to the antenna transmission line must not exceed 25 μW and must be at least 40 dB below the mean power of the fundamental emission, but need not be reduced below the power of 10 μW. A transmitter built before April 15, 1977, or first marketed before January 1, 1978, is exempt from this requirement.

(f) The following standards and limitations apply to transmissions on the frequencies specified in § 97.305(c) of this part.

(1) No angle-modulated emission may have a modulation index greater than 1 at the highest modulation frequency.

(2) No non-phone emission shall exceed the bandwidth of a communications quality phone emission of the same modulation type. The total bandwidth of an independent sideband emission (having B as the first symbol), or a multiplexed image and phone emission, shall not exceed that of a communications quality A3E emission.

(3) Only a RTTY or data emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. The symbol rate must not exceed 300 bauds, or for frequency-shift keying, the frequency shift between mark and space must not exceed 1 kHz.

(4) Only a RTTY or data emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. The symbol rate must not exceed 1200 bauds, or for frequency-shift keying, the frequency shift between mark and space must not exceed 1 kHz.

(5) A RTTY, data or multiplexed emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. The symbol rate must not exceed 19.6 kilobauds. A RTTY, data or multiplexed emission using an unspecified digital code under the limitations listed in § 97.309(b) of this part also may be transmitted. The authorized bandwidth is 20 kHz.

(6) A RTTY, data or multiplexed emission using a specified digital code listed in § 97.309(a) of this part may be transmitted. The symbol rate must not exceed 56 kilobauds. A RTTY, data or

multiplexed emission using an unspecified digital code under the limitations listed in § 97.309(b) of this part also may be transmitted. The authorized bandwidth is 100 kHz.

(7) A RTTY, data or multiplexed emission using a specified digital code listed in § 97.309(a) of this part or an unspecified digital code under the limitations listed in § 97.309(b) of this part may be transmitted.

(8) A RTTY or data emission having designators with A, B, C, D, E, F, G, H, J or R as the first symbol; 1, 2, 7, 9 or X as the second symbol; and D or W as the third symbol is also authorized.

(9) A station having a control operator holding a Novice or Technician Class operator license may only transmit a CW emission using the international Morse code.

(10) A station having a control operator holding a Novice Class operator license or a Technician Class operator license may only transmit a CW emission using the international Morse code or phone emissions J3E and R3E.

(11) Phone and image emissions may be transmitted only by stations located in ITU Regions 1 and 3, and by stations located within ITU Region 2 that are west of 130° West longitude or south of 20° North latitude.

(12) Emission F8E may be transmitted.

(13) A data emission using an unspecified digital code under the limitations listed in § 97.309(b) also may be transmitted. The authorized bandwidth is 100 kHz.

(14) *In the 60 m band:*

(i) A station may transmit only phone, RTTY, data, and CW emissions using the emission designators and any additional restrictions that are specified in the table below (except that the use of a narrower necessary bandwidth is permitted):

60 M BAND EMISSION REQUIREMENTS

Emission type	Emission designator	Restricted to:
Phone	2K80J3E	Upper sideband transmissions (USB).
Data	2K80J2D	USB (for example, PACTOR–III).
RTTY	60H0J2B	USB (for example, PSK31).
CW	150HA1A	Morse telegraphy by means of on-off keying.

(ii) The following requirements also apply:

(A) When transmitting the phone, RTTY, and data emissions, the suppressed carrier frequency may be set as specified in § 97.303(h).

(B) The control operator of a station transmitting data or RTTY emissions must exercise care to limit the length of transmission so as to avoid causing harmful interference to United States Government stations.

[54 FR 25857, June 20, 1989; 54 FR 30823, July 24, 1989, as amended at 54 FR 39537, Sept. 27, 1989; 60 FR 15688, Mar. 27, 1995; 65 FR 6550, Feb. 10, 2000; 69 FR 24997, May 5, 2004; 77 FR 5412, Feb. 3, 2012; 79 FR 35291, June 20, 2014]

§ 97.309 RTTY and data emission codes.

(a) Where authorized by §§ 97.305(c) and 97.307(f) of the part, an amateur station may transmit a RTTY or data emission using the following specified digital codes:

(1) The 5-unit, start-stop, International Telegraph Alphabet No. 2, code defined in ITU–T Recommendation F.1, Division C (commonly known as ''Baudot'').

(2) The 7-unit code specified in ITU–R Recommendations M.476–5 and M.625–3 (commonly known as ''AMTOR'').

(3) The 7-unit, International Alphabet No. 5, code defined in IT—T Recommendation T.50 (commonly known as ''ASCII'').

(4) An amateur station transmitting a RTTY or data emission using a digital code specified in this paragraph may use any technique whose technical characteristics have been documented publicly, such as CLOVER, G-TOR, or PacTOR, for the purpose of facilitating communications.

(b) Where authorized by §§ 97.305(c) and 97.307(f) of this part, a station may transmit a RTTY or data emission using an unspecified digital code, except to a station in a country with

which the United States does not have an agreement permitting the code to be used. RTTY and data emissions using unspecified digital codes must not be transmitted for the purpose of obscuring the meaning of any communication. When deemed necessary by a District Director to assure compliance with the FCC Rules, a station must:

(1) Cease the transmission using the unspecified digital code;

(2) Restrict transmissions of any digital code to the extent instructed;

(3) Maintain a record, convertible to the original information, of all digital communications transmitted.

[54 FR 25857, June 20, 1989, as amended at 54 FR 39537, Sept. 27, 1989; 56 FR 56172, Nov. 1, 1991; 60 FR 55486, Nov. 1, 1995; 71 FR 25982, May 3, 2006; 71 FR 66465, Nov. 15, 2006]

§ 97.311 SS emission types.

(a) SS emission transmissions by an amateur station are authorized only for communications between points within areas where the amateur service is regulated by the FCC and between an area where the amateur service is regulated by the FCC and an amateur station in another country that permits such communications. SS emission transmissions must not be used for the purpose of obscuring the meaning of any communication.

(b) A station transmitting SS emissions must not cause harmful interference to stations employing other authorized emissions, and must accept all interference caused by stations employing other authorized emissions.

(c) When deemed necessary by a District Director to assure compliance with this part, a station licensee must:

(1) Cease SS emission transmissions;

(2) Restrict SS emission transmissions to the extent instructed; and

(3) Maintain a record, convertible to the original information (voice, text, image, etc.) of all spread spectrum communications transmitted.

[64 FR 51471, Sept. 23, 1999, as amended at 76 FR 17569, Mar. 30, 2011]

§ 97.313 Transmitter power standards.

(a) An amateur station must use the minimum transmitter power necessary to carry out the desired communications.

(b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

(c) No station may transmit with a transmitter power output exceeding 200 W PEP:

(1) On the 10.10–10.15 MHz segment;

(2) On the 3.525–3.60 MHz, 7.025–7.125 MHz, 21.025–21.20 MHz, and 28.0–28.5 MHz segment when the control operator is a Novice Class operator or a Technician Class operator; or

(3) The 7.050-7.075 MHz segment when the station is within ITU Regions 1 or 3.

(d) No station may transmit with a transmitter power exceeding 25 W PEP on the VHF 1.25 m band when the control operator is a Novice operator.

(e) No station may transmit with a transmitter power exceeding 5 W PEP on the UHF 23 cm band when the control operator is a Novice operator.

(f) No station may transmit with a transmitter power exceeding 50 W PEP on the UHF 70 cm band from an area specified in paragraph (a) of footnote US270 in § 2.106, unless expressly authorized by the FCC after mutual agreement, on a case-by-case basis, between the District Director of the applicable field facility and the military area frequency coordinator at the applicable military base. An Earth station or telecommand station, however, may transmit on the 435–438 MHz segment with a maximum of 611 W effective radiated power (1 kW equivalent isotropically radiated power) without the authorization otherwise required. The transmitting antenna elevation angle between the lower half-power (− 3 dB relative to the peak or antenna bore sight) point and the horizon must always be greater than 10°.

(g) No station may transmit with a transmitter power exceeding 50 W PEP on the 33 cm band from within 241 km of the boundaries of the White Sands Missile Range. Its boundaries are those portions of Texas and New Mexico bounded on the south by latitude 31°41′ North, on the east by longitude 104°11′ West, on the north by latitude 34°30′ North, and on the west by longitude 107°30′ West.

(h) No station may transmit with a transmitter power exceeding 50 W PEP

on the 219–220 MHz segment of the 1.25 m band.

(i) No station may transmit with an effective radiated power (ERP) exceeding 100 W PEP on the 60 m band. For the purpose of computing ERP, the transmitter PEP will be multiplied by the antenna gain relative to a half-wave dipole antenna. A half-wave dipole antenna will be presumed to have a gain of 1 (0 dBd). Licensees using other antennas must maintain in their station records either the antenna manufacturer's data on the antenna gain or calculations of the antenna gain.

(j) No station may transmit with a transmitter output exceeding 10 W PEP when the station is transmitting a SS emission type.

[54 FR 25857, June 20, 1989, as amended at 56 FR 37161, Aug. 5, 1991; 56 FR 3043, Jan. 28, 1991; 60 FR 15688, Mar. 27, 1995; 65 FR 6550, Feb. 10, 2000; 71 FR 66465, Nov. 15, 2006; 75 FR 27204, May 14, 2010; 75 FR 78171, Dec. 15, 2010; 76 FR 17569, Mar. 30, 2011; 77 FR 5413, Feb. 3, 2012]

§ 97.315 Certification of external RF power amplifiers.

(a) Any external RF power amplifier (see § 2.815 of the FCC Rules) manufactured or imported for use at an amateur radio station must be certificated for use in the amateur service in accordance with subpart J of part 2 of the FCC Rules. No amplifier capable of operation below 144 MHz may be constructed or modified by a non-amateur service licensee without a grant of certification from the FCC.

(b) The requirement of paragraph (a) does not apply if one or more of the following conditions are met:

(1) The amplifier is constructed or modified by an amateur radio operator for use at an amateur station.

(2) The amplifier was manufactured before April 28, 1978, and has been issued a marketing waiver by the FCC, or the amplifier was purchased before April 28, 1978, by an amateur radio operator for use at that operator's station.

(3) The amplifier is sold to an amateur radio operator or to a dealer, the amplifier is purchased in used condition by a dealer, or the amplifier is sold to an amateur radio operator for use at that operator's station.

(c) Any external RF power amplifier appearing in the Commission's database as certificated for use in the amateur service may be marketed for use in the amateur service.

[71 FR 66465, Nov. 15, 2006]

§ 97.317 Standards for certification of external RF power amplifiers.

(a) To receive a grant of certification, the amplifier must:

(1) Satisfy the spurious emission standards of § 97.307 (d) or (e) of this part, as applicable, when the amplifier is operated at the lesser of 1.5 kW PEP or its full output power and when the amplifier is placed in the ''standby'' or ''off'' positions while connected to the transmitter.

(2) Not be capable of amplifying the input RF power (driving signal) by more than 15 dB gain. Gain is defined as the ratio of the input RF power to the output RF power of the amplifier where both power measurements are expressed in peak envelope power or mean power.

(3) Exhibit no amplification (0 dB gain) between 26 MHz and 28 MHz.

(b) Certification shall be denied when:

(1) The Commission determines the amplifier can be used in services other than the Amateur Radio Service, or

(2) The amplifier can be easily modified to operate on frequencies between 26 MHz and 28 MHz.

[71 FR 66465, Nov. 15, 2006]

Subpart E—Providing Emergency Communications

§ 97.401 Operation during a disaster.

A station in, or within 92.6 km (50 nautical miles) of, Alaska may transmit emissions J3E and R3E on the channel at 5.1675 MHz (assigned frequency 5.1689 MHz) for emergency communications. The channel must be shared with stations licensed in the Alaska-Private Fixed Service. The transmitter power must not exceed 150 W PEP. A station in, or within 92.6 km

of, Alaska may transmit communications for tests and training drills necessary to ensure the establishment, operation, and maintenance of emergency communication systems.

[71 FR 66465, Nov. 15, 2006]

§ 97.403 Safety of life and protection of property.

No provision of these rules prevents the use by an amateur station of any means of radiocommunication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.

§ 97.405 Station in distress.

(a) No provision of these rules prevents the use by an amateur station in distress of any means at its disposal to attract attention, make known its condition and location, and obtain assistance.

(b) No provision of these rules prevents the use by a station, in the exceptional circumstances described in paragraph (a) of this section, of any means of radiocommunications at its disposal to assist a station in distress.

§ 97.407 Radio amateur civil emergency service.

(a) No station may transmit in RACES unless it is an FCC-licensed primary, club, or military recreation station and it is certified by a civil defense organization as registered with that organization. No person may be the control operator of an amateur station transmitting in RACES unless that person holds a FCC-issued amateur operator license and is certified by a civil defense organization as enrolled in that organization.

(b) The frequency bands and segments and emissions authorized to the control operator are available to stations transmitting communications in RACES on a shared basis with the amateur service. In the event of an emergency which necessitates invoking the President's War Emergency Powers under the provisions of section 706 of the Communications Act of 1934, as amended, 47 U.S.C. 606, amateur stations participating in RACES may only transmit on the frequency segments authorized pursuant to part 214 of this chapter.

(c) An amateur station registered with a civil defense organization may only communicate with the following stations upon authorization of the responsible civil defense official for the organization with which the amateur station is registered:

(1) An amateur station registered with the same or another civil defense organization; and

(2) A station in a service regulated by the FCC whenever such communication is authorized by the FCC.

(d) All communications transmitted in RACES must be specifically authorized by the civil defense organization for the area served. Only civil defense communications of the following types may be transmitted:

(1) Messages concerning impending or actual conditions jeopardizing the public safety, or affecting the national defense or security during periods of local, regional, or national civil emergencies;

(2) Messages directly concerning the immediate safety of life of individuals, the immediate protection of property, maintenance of law and order, alleviation of human suffering and need, and the combating of armed attack or sabotage;

(3) Messages directly concerning the accumulation and dissemination of public information or instructions to the civilian population essential to the activities of the civil defense organization or other authorized governmental or relief agencies; and

(4) Communications for RACES training drills and tests necessary to ensure the establishment and maintenance of orderly and efficient operation of the RACES as ordered by the responsible civil defense organization served. Such drills and tests may not exceed a total time of 1 hour per week. With the approval of the chief officer for emergency planning in the applicable State, Commonwealth, District or territory, however, such tests and drills may be conducted for a period not to exceed 72 hours no more than twice in any calendar year.

[75 FR 78171, Dec. 15, 2010]

Subpart F—Qualifying Examination Systems

§ 97.501 Qualifying for an amateur operator license.

Each applicant must pass an examination for a new amateur operator license grant and for each change in operator class. Each applicant for the class of operator license grant specified below must pass, or otherwise receive examination credit for, the following examination elements:

(a) Amateur Extra Class operator: Elements 2, 3, and 4;

(b) General Class operator: Elements 2 and 3;

(c) Technician Class operator: Element 2.

[65 FR 6550, Feb. 10, 2000, as amended at 72 FR 3082, Jan. 24, 2007]

§ 97.503 Element standards.

A written examination must be such as to prove that the examinee possesses the operational and technical qualifications required to perform properly the duties of an amateur service licensee. Each written examination must be comprised of a question set as follows:

(a) Element 2: 35 questions concerning the privileges of a Technician Class operator license. The minimum passing score is 26 questions answered correctly.

(b) Element 3: 35 questions concerning the privileges of a General Class operator license. The minimum passing score is 26 questions answered correctly.

(c) Element 4: 50 questions concerning the privileges of an Amateur Extra Class operator license. The minimum passing score is 37 questions answered correctly.

[54 FR 25857, June 20, 1989, as amended at 61 FR 41019, Aug. 7, 1996; 65 FR 6550, Feb. 10, 2000; 72 FR 3082, Jan. 24, 2007]

§ 97.505 Element credit.

(a) The administering VEs must give credit as specified below to an examinee holding any of the following license grants:

Operator class	Unexpired (or within the renewal grace period)	Expired and beyond the renewal grace period
(1) Amateur Extra	Not applicable	Elements 3 and 4.
(2) Advanced; General; or Technician granted before March 21, 1987.	Elements 2 and 3	Element 3.
(3) Technician Plus; or Technician granted on or after March 21, 1987.	Element 2	No credit.

(b) The administering VEs must give credit to an examinee holding a CSCE for each element the CSCE indicates the examinee passed within the previous 365 days.

[79 FR 35291, June 20, 2014]

§ 97.507 Preparing an examination.

(a) Each written question set administered to an examinee must be prepared by a VE holding an Amateur Extra Class operator license. A written question set may also be prepared for the following elements by a VE holding an operator license of the class indicated:

(1) Element 3: Advanced Class operator.

(2) Element 2: Advanced or General class operators.

(b) Each question set administered to an examinee must utilize questions taken from the applicable question pool.

(c) Each written question set administered to an examinee for an amateur operator license must be prepared, or obtained from a supplier, by the administering VEs according to instructions from the coordinating VEC.

[54 FR 25857, June 20, 1989, as amended at 58 FR 29126, May 19, 1993; 59 FR 54834, Nov. 2, 1994; 65 FR 6551, Feb. 10, 2000; 69 FR 24997, May 5, 2004; 79 FR 35291, June 20, 2014; 79 FR 52226, Sept. 3, 2014]

§ 97.509 Administering VE requirements.

(a) Each examination for an amateur operator license must be administered

by a team of at least 3 VEs at an examination session coordinated by a VEC. The number of examinees at the session may be limited.

(b) Each administering VE must:

(1) Be accredited by the coordinating VEC;

(2) Be at least 18 years of age;

(3) Be a person who holds an amateur operator license of the class specified below:

(i) Amateur Extra, Advanced or General Class in order to administer a Technician Class operator license examination;

(ii) Amateur Extra or Advanced Class in order to administer a General Class operator license examination;

(iii) Amateur Extra Class in order to administer an Amateur Extra Class operator license examination.

(4) Not be a person whose grant of an amateur station license or amateur operator license has ever been revoked or suspended.

(c) Each administering VE must observe the examinee throughout the entire examination. The administering VEs are responsible for the proper conduct and necessary supervision of each examination. The administering VEs must immediately terminate the examination upon failure of the examinee to comply with their instructions.

(d) No VE may administer an examination to his or her spouse, children, grandchildren, stepchildren, parents, grandparents, stepparents, brothers, sisters, stepbrothers, stepsisters, aunts, uncles, nieces, nephews, and in-laws.

(e) No VE may administer or certify any examination by fraudulent means or for monetary or other consideration including reimbursement in any amount in excess of that permitted. Violation of this provision may result in the revocation of the grant of the VE's amateur station license and the suspension of the grant of the VE's amateur operator license.

(f) No examination that has been compromised shall be administered to any examinee. The same question set may not be re-administered to the same examinee.

(g) [Reserved]

(h) Upon completion of each examination element, the administering VEs must immediately grade the examinee's answers. For examinations administered remotely, the administering VEs must grade the examinee's answers at the earliest practical opportunity. The administering VEs are responsible for determining the correctness of the examinee's answers.

(i) When the examinee is credited for all examination elements required for the operator license sought, 3 VEs must certify that the examinee is qualified for the license grant and that the VEs have complied with these administering VE requirements. The certifying VEs are jointly and individually accountable for the proper administration of each examination element reported. The certifying VEs may delegate to other qualified VEs their authority, but not their accountability, to administer individual elements of an examination.

(j) When the examinee does not score a passing grade on an examination element, the administering VEs must return the application document to the examinee and inform the examinee of the grade.

(k) The administering VEs must accommodate an examinee whose physical disabilities require a special examination procedure. The administering VEs may require a physician's certification indicating the nature of the disability before determining which, if any, special procedures must be used.

(l) The administering VEs must issue a CSCE to an examinee who scores a passing grade on an examination element.

(m) After the administration of a successful examination for an amateur operator license, the administering VEs must submit the application document to the coordinating VEC according to the coordinating VEC's instructions.

[59 FR 54834, Nov. 2, 1994, as amended at 61 FR 9953, Mar. 12, 1996; 62 FR 17567, Apr. 10, 1997; 63 FR 68980, Dec. 14, 1998; 65 FR 6551, Feb. 10, 2000; 71 FR 66465, Nov. 15, 2006; 79 FR 35291. June 20, 2014]

§ 97.511 Examinee conduct.

Each examinee must comply with the instructions given by the administering VEs.

[59 FR 54835, Nov. 2, 1994]

§ 97.513 VE session manager requirements.

(a) A VE session manager may be selected by the VE team for each examination session. The VE session manager must be accredited as a VE by the same VEC that coordinates the examination session. The VE session manager may serve concurrently as an administering VE.

(b) The VE session manager may carry on liaison functions between the VE team and the coordinating VEC.

(c) The VE session manager may organize activities at an examination session.

[62 FR 17567, Apr. 10, 1997, as amended at 79 FR 35291, June 20, 2014]

§§ 97.515–97.517 [Reserved]

§ 97.519 Coordinating examination sessions.

(a) A VEC must coordinate the efforts of VEs in preparing and administering examinations.

(b) At the completion of each examination session, the coordinating VEC must collect applicant information and test results from the administering VEs. The coordinating VEC must:

(1) Screen collected information;

(2) Resolve all discrepancies and verify that the VEs' certifications are properly completed; and

(3) For qualified examinees, forward electronically all required data to the FCC. All data forwarded must be retained for at least 15 months and must be made available to the FCC upon request.

(c) Each VEC must make any examination records available to the FCC, upon request

(d) The FCC may:

(1) Administer any examination element itself;

(2) Readminister any examination element previously administered by VEs, either itself or under the supervision of a VEC or VEs designated by the FCC; or

(3) Cancel the operator/primary station license of any licensee who fails to appear for readministration of an examination when directed by the FCC, or who does not successfully complete any required element that is readministered. In an instancce of such cancellation, the person will be granted an operator/primary station license consistent with completed examination elements that have not been invalidated by not appearing for, or by failing, the examination upon readministration.

[54 FR 25857, June 20, 1989, as amended at 59 FR 54835, Nov. 2, 1994; 62 FR 17567, Apr. 10, 1997; 63 FR 68981, Dec. 14, 1998; 71 FR 66465, Nov. 15, 2006; 79 FR 35291, June 20, 2014]

§ 97.521 VEC qualifications.

No organization may serve as a VEC unless it has entered into a written agreement with the FCC. The VEC must abide by the terms of the agreement. In order to be eligible to be a VEC, the entity must:

(a) Be an organization that exists for the purpose of furthering the amateur service;

(b) Be capable of serving as a VEC in at least the VEC region (see appendix 2) proposed;

(c) Agree to coordinate examinations for any class of amateur operator license;

(d) Agree to assure that, for any examination, every examinee qualified under these rules is registered without regard to race, sex, religion, national origin or membership (or lack thereof) in any amateur service organization;

[54 FR 25857, June 20, 1989, as amended at 58 FR 29127, May 19, 1993; 61 FR 9953, Mar. 12, 1996]

§ 97.523 Question pools.

All VECs must cooperate in maintaining one question pool for each written examination element. Each question pool must contain at least 10 times the number of questions required for a single examination. Each question pool must be published and made available to the public prior to its use for making a question set. Each question on each VEC question pool must be prepared by a VE holding the required FCC-issued operator license. See § 97.507(a) of this part.

§ 97.525 Accrediting VEs.

(a) No VEC may accredit a person as a VE if:

(1) The person does not meet minimum VE statutory qualifications or

minimum qualifications as prescribed by this part;

(2) The FCC does not accept the voluntary and uncompensated services of the person;

(3) The VEC determines that the person is not competent to perform the VE functions; or

(4) The VEC determines that questions of the person's integrity or honesty could compromise the examinations.

(b) Each VEC must seek a broad representation of amateur operators to be VEs. No VEC may discriminate in accrediting VEs on the basis of race, sex, religion or national origin; nor on the basis of membership (or lack thereof) in an amateur service organization; nor on the basis of the person accepting or declining to accept reimbursement.

§ 97.527 Reimbursement for expenses.

VEs and VECs may be reimbursed by examinees for out-of-pocket expenses incurred in preparing, processing, administering, or coordinating an examination for an amateur operator license.

[66 FR 20752, Apr. 25, 2001]

APPENDIX 1 TO PART 97—PLACES WHERE THE AMATEUR SERVICE IS REGULATED BY THE FCC

In ITU Region 2, the amateur service is regulated by the FCC within the territorial limits of the 50 United States, District of Columbia, Caribbean Insular areas [Commonwealth of Puerto Rico, United States Virgin Islands (50 islets and cays) and Navassa Island], and Johnston Island (Islets East, Johnston, North and Sand) and Midway Island (Islets Eastern and Sand) in the Pacific Insular areas.

In ITU Region 3, the amateur service is regulated by the FCC within the Pacific Insular territorial limits of American Samoa (seven islands), Baker Island, Commonwealth of Northern Mariana Islands, Guam Island, Howland Island, Jarvis Island, Kingman Reef, Palmyra Island (more than 50 islets) and Wake Island (Islets Peale, Wake and Wilkes).

APPENDIX 2 TO PART 97—VEC REGIONS

1. Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.
2. New Jersey and New York.
3. Delaware, District of Columbia, Maryland and Pennsylvania.
4. Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee and Virginia.
5. Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.
6. California.
7. Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming.
8. Michigan, Ohio and West Virginia.
9. Illinois, Indiana and Wisconsin.
10. Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.
11. Alaska.
12. Caribbean Insular areas.
13. Hawaii and Pacific Insular areas.

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AUTHORITY: 47 U.S.C. 154, 303.

SOURCE: 61 FR 26677, May 28, 1996, unless otherwise noted.

Subpart A—General

§ 101.1 Scope and authority.

(a) Part 1 of the Commission's rules contains the general rules of practice and procedure applicable to proceedings before the Commission and for the filing of applications for radio station licenses in the fixed microwave services.

(b) The purpose of the rules in this part is to prescribe the manner in which portions of the radio spectrum may be made available for private operational, common carrier, 24 GHz Service and Local Multipoint Distribution Service fixed, microwave operations that require transmitting facilities on land or in specified offshore coastal areas within the continental shelf.

(c) The rules in this part are issued pursuant to the authority contained in Titles I through III of the Communications Act of 1934, as amended, which vest authority in the Federal Communications Commission to regulate common carriers of interstate and foreign communications, to regulate radio transmissions and issue licenses for radio stations, and to regulate all interstate and foreign communications by wire and radio necessary to the accomplishment of the purposes of the Act.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23163, Apr. 29, 1997; 63 FR 68981, Dec. 14, 1998; 65 FR 59357, Oct. 5, 2000]

§ 101.3 Definitions.

As used in this part:

24 GHz Service. A fixed point-to-point, point-to-multipoint, and multipoint-to-multipoint radio system in the 24.25–24.45 GHz band and in the 25.05–25.25 GHz band consisting of a fixed main (nodal) station and a number of fixed user terminals. This service may encompass any digital fixed service.

Antenna power gain. The ratio of the maximum radiation intensity to that of an isotropic (omnidirectional) radiator in the far field of its main (forward direction) lobe.

Antenna power input. The radio frequency peak or RMS power, as the case may be, supplied to the antenna from the antenna transmission line and its associated impedance matching network.

Antenna structure. The antenna, its supporting structure and anything attached to it.

Assigned frequency. The center of the frequency band assigned to a station.

Assigned frequency bandwidth. The frequency band within which the emission of a station is authorized; the width of the band equals the necessary bandwidth plus twice the absolute value of the frequency tolerance.

Authorized bandwidth. The maximum bandwidth authorized to be used by a station as specified in the station license. (See § 2.202 of this chapter)

Authorized frequency. The frequency, or frequency range, assigned to a station by the Commission and specified in the instrument of authorization.

Authorized power. The maximum power a station is permitted to use. This power is specified by the Commission in the station's authorization.

Automatic Transmitter Power Control (ATPC). ATPC is a feature of a digital microwave radio system that adjusts the transmitter output power. ATPC allows the transmitter to operate at less than maximum power for most of the time. In a radio employing ATPC, the transmit power is reduced during normal operation conditions. When the receiver detects a reduction in signal level, a control signal is sent to the far end transmitter, instructing it to increase the power output to compensate for the signal reduction. The power output is limited to the licensed (maximum) transmit power. Guidelines for use of ATPC are set forth in the TIA Telecommunications Systems Bulletin TSB 10, ''Interference Criteria for Microwave Systems (TSB 10).''

Bandwidth occupied by an emission. The band of frequencies comprising 99

percent of the total radiated power extended to include any discrete frequency on which the power is at least 0.25 percent of the total radiated power.

Bit rate. The rate of transmission of information in binary (two state) form in bits per unit time.

Carrier. In a frequency stabilized system, the sinusoidal component of a modulated wave whose frequency is independent of the modulating wave; or the output of a transmitter when the modulating wave is made zero; or a wave generated at a point in the transmitting system and subsequently modulated by the signal; or a wave generated locally at the receiving terminal which when combined with the side bands in a suitable detector, produces the modulating wave.

Carrier frequency. The output of a transmitter when the modulating wave is made zero.

Central office. A landline termination center used for switching and interconnection of public message communication circuits.

Common carrier fixed point-to-point microwave service. A common carrier public radio service rendered on microwave frequencies by fixed and temporary fixed stations between points that lie within the United States or between points to its possessions or to points in Canada or Mexico.

Communication common carrier. Any person engaged in rendering communication service for hire to the public.

Control point. An operating position at which an operator responsible for the operation of the transmitter is stationed and which is under the control and supervision of the licensee.

Control station. A fixed station, the transmissions of which are used to control automatically the emissions or operations of a radio station, or a remote base station transmitter.

Coordination area. The area associated with a station outside of which another station sharing the same or adjacent frequency band neither causes nor is subject to interfering emissions greater than a permissible level.

Coordination contour. The line enclosing the coordination area.

Coordination distance. The distance on a given azimuth from a station beyond which another station neither causes nor is subject to interfering emissions greater than a permissible level.

Digital Electronic Message Nodal Station. A fixed point-to-multipoint radio station in a Digital Electronic Message Service providing two-way communication with Digital Electronic Message User Stations.

Digital Electronic Message Service. A two-way end-to-end fixed radio service utilizing digital termination systems for the exchange of digital information in the frequency bands 10,550–10,680 MHz, 18,820–18,920 MHz, and 19,160–19,260 MHz. This service may also make use of point-to-point microwave facilities, satellite facilities or other communications media to interconnect digital termination systems to comprise a network.

Digital Electronic Message User Station. Any one of the fixed microwave radio stations located at users' premises, lying within the coverage area of a Digital Electronic Message Nodal Station, and providing two-way digital communications with the Digital Electronic Message Nodal Station.

Digital modulation. The process by which some characteristic (frequency, phase, amplitude or combinations thereof) of a carrier frequency is varied in accordance with a digital signal, e.g., one consisting of coded pulses or states.

Drop point. A term used in the point-to-point microwave radio service to designate a terminal point where service is rendered to a subscriber.

Earth station. A station located either on the Earth's surface or within the major portion of Earth's atmosphere and intended for communication:

(1) With one or more space stations; or

(2) With one or more stations of the same kind by means of one or more reflecting satellites or other objects in space.

Effective Radiated Power (ERP). The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

Equivalent Isotropically Radiated Power (EIRP). The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Exchange. A unit of a communication company or companies for the administration of communication service in a specified area, which usually embraces a city, town, or village and its environs, and consisting of one or more central offices, together with the associated plant, used in furnishing communication service in that area.

Exchange area. The geographic area included within the boundaries of an exchange.

Fixed satellite earth station. An earth station intended to be used at a specified fixed point.

Fixed relay station. A fixed station associated with one or more stations, established to receive radio signals directed to it and to retransmit them automatically on a fixed service frequency.

Fixed service. A radio communications service between specified fixed points.

Fixed station. A station in the fixed service.

Frequency tolerance. The maximum permissible departure by the center frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency.

NOTE: The frequency tolerance is expressed as a percentage or in Hertzs.

General communication. Two-way voice communication, through a base station, between:

(1) A common carrier land mobile or airborne station and a landline telephone station connected to a public message landline telephone system;

(2) Two common carrier land mobile stations;

(3) Two common carrier airborne stations;

(4) A common carrier land mobile station and a common carrier airborne station.

Harmful interference. Interference that endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with these regulations.

Internodal link. A point-to-point communications link used to provide communications between nodal stations or to interconnect nodal stations to other communications media.

Landing area. A landing area means any locality, either of land or water, including airports and intermediate landing fields, which is used, or approved for use for the landing and take-off of aircraft, whether or not facilities are provided for the shelter, servicing, or repair of aircraft, or for receiving or discharging passengers or cargo.

Local Multipoint Distribution Service Backbone Link. A point-to-point radio service link in a Local Multipoint Distribution Service System that is used to interconnect Local Multipoint Distribution Service Hub Stations with each other or with the public switched telephone network.

Local Multipoint Distribution Service Hub Station. A fixed point-to-point or point-to-multipoint radio station in a Local Multipoint Distribution Service System that provides one-way or two-way communication with Local Multipoint Distribution Service Subscriber Stations.

Local Multipoint Distribution Service Subscriber Station. Any one of the fixed microwave radio stations located at users' premises, lying within the coverage area of a Local Multipoint Distribution Service Hub Station, capable of receiving one-way communications from or providing two-way communications with the Local Multipoint Distribution Service Hub Station.

Local Multipoint Distribution Service System. A fixed point-to-point or point-to-multipoint radio system consisting of Local Multipoint Distribution Service Hub Stations and their associated Local Multipoint Distribution Service Subscriber Stations.

Local television transmission service. A public radio communication service for the transmission of television material and related communications.

Long haul system. A microwave system licensed under this part in which the longest radio circuit of tandem radio paths exceeds 402 kilometers.

Master station. A station in a multiple address radio system that controls, activates or interrogates four or more remote stations. Master stations performing such functions may also receive transmissions from remote stations.

Message center. The point at which messages from members of the public are accepted by the carrier for transmission to the addressee.

Microwave frequencies. As used in this part, this term refers to frequencies of 890 MHz and above.

Microwave link. A link is defined as a simplex communications circuit between two points utilizing a single frequency/polarization assignment. A duplex communications circuit would require two links, one link in each direction.

Miscellaneous common carriers. Communications common carriers that are not engaged in the business of providing either a public landline message telephone service or public message telegraph service.

Mobile earth station. An earth station intended to be used while in motion or during halts at unspecified points.

Mobile service. A radio communication service between mobile and land stations or between mobile stations.

Mobile station. A station in the mobile service intended to be used while in motion or during halts at unspecified points.

Multichannel Video Distribution and Data Service (MVDDS). A fixed microwave service licensed in the 12.2–12.7 GHz band that provides various wireless services. Mobile and aeronautical operations are prohibited.

Multiple address system (MAS). A point-to-multipoint or point-to-point radio communications system used for either one-way or two-way transmissions that operates in the 928/952/956 MHz, the 928/959 MHz or the 932/941 MHz bands in accordance with § 101.147.

National Spatial Reference System. The National Spatial Reference System (NSRS) is the name given to all Geodetic Control information contained in the National Geodetic Survey (NGS) Data Base. This includes: A, B, First, Second, and Third Order horizontal and vertical control observed by NGS as well as data submitted by other agencies (i.e., USGS, BLM, States, Counties, Cities, and private surveying organizations).

Necessary bandwidth. For a given class of emission, the width of the frequency band that is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions. The necessary bandwidth may be calculated using the formulas in § 2.202 of this chapter.

Nodal station. The central or controlling stations in a microwave radio system operating on point-to-multipoint or multipoint-to-multipoint frequencies with one or more user stations or internodal links.

Occupied bandwidth. The width of a frequency bandwidth such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage, B/2 of the total mean power of a given emission. Unless otherwise specified by the CCIR for the appropriate class of emission, the value of B/2 should be taken as 0.5%.

NOTE: The percentage of the total power outside the occupied bandwidth is represented by B.

Operational fixed station. A private fixed station not open to public correspondence.

Passive repeater. A re-radiation device associated with a transmitting/receiving antenna system that re-directs intercepted radiofrequency energy. For example, it may consist of reflector(s) or back-to-back parabolic or horn antennas.

Path length. The total distance of a path from the transmit to the receive antenna, inclusive of all passive repeaters, if any.

Payload capacity. The bit rate available for transmission of data over a radiocommunication system, excluding overhead data generated by the system.

Periscope antenna system. An antenna system which involves the use of a passive reflector to deflect radiation from or to a directional transmitting or receiving antenna which is oriented vertically or near vertically.

Prior coordination. A bilateral process conducted prior to filing applications which includes the distribution of the technical parameters of a proposed radio system to potentially affected parties for their evaluation and timely response.

Private carrier. An entity licensed in the private service and authorized to provide communications service to

other private service eligibles on a commercial basis.

Private line service. A service whereby facilities for communication between two or more designated points are set aside for the exclusive use or availability for use of a particular customer and authorized users during stated periods of time.

Private operational fixed point-to-point microwave service. A private radio service rendered by fixed and temporary fixed stations on microwave frequencies for the exclusive use or availability for use of the licensee or other eligible entities for communication between two or more designated points. Service may be provided between points within the United States, points within United States possessions, or between the United States and points in Canada or Mexico.

Public correspondence. Any telecommunication which the offices and stations must, by reason of their being at the disposal of the public, accept for transmission.

Public message service. A service whereby facilities are offered to the public for communication between all points served by a carrier or by interconnected carriers on a non-exclusive message by message basis, contemplating a separate connection for each occasion of use.

Radio station. A separate transmitter or a group of transmitters under simultaneous common control, including the accessory equipment required for carrying on a radiocommunication service.

Radiocommunication. Telecommunication by means of radio waves.

Rated power output. The maximum radio frequency power output capability (peak or average power) of a transmitter, under optimum conditions of adjustment and operation, specified by its manufacturer.

Record communication. Any transmission of intelligence which is reduced to visual record form at the point of reception.

Reference frequency. A frequency having a fixed and specified position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the centre of the frequency band occupied by the emission.

Relay station. A fixed station used for the reception and retransmission of the signals of another station or stations.

Remote station. A fixed station in a multiple address radio system that transmits one-way to one or more central receive sites, controls a master station, or is controlled, activated or interrogated by, and may respond to, a master station.

Repeater station. A fixed station established for the automatic retransmission of radiocommunications received from one or more mobile stations and directed to a specified location; for public mobile radio operations, a fixed station that automatically retransmits the mobile communications and/or transmitter information about the base station, along a fixed point-to-point link between the base station and the central station.

Secondary operations. Radio communications which may not cause interference to operations authorized on a primary basis and which are not protected from interference from these primary operations.

Short haul system. A microwave system licensed under this part in which the longest radio circuit of tandem radio paths does not exceed 402 kilometers.

Signal booster. A device at a fixed location which automatically receives, amplifies, and retransmits on a one-way or two-way basis, the signals received from base, fixed, mobile, and portable stations, with no change in frequency or authorized bandwidth. A signal booster may be either narrowband (Class A), in which case the booster amplifies only those discrete frequencies intended to be retransmitted, or broadband (Class B), in which case all signals within the passband of the signal booster filter are amplified.

Signaling communication. One-way communications from a base station to a mobile or fixed receiver, or to multipoint mobile or fixed receivers by audible or subaudible means, for the purpose of actuating a signaling device in

the receiver(s) or communicating information to the receiver(s), whether or not the information is to be retained in record form.

Standby transmitter. A transmitter installed and maintained for use in lieu of the main transmitter only during periods when the main transmitter is out of service for maintenance or repair.

Symbol rate. Modulation rate in bauds. This rate may be higher than the transmitted bit rate as in the case of coded pulses or lower as in the case of multilevel transmission.

Telegraphy. A form of telecommunication which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. Unless otherwise specified, telegraphy means a form of telecommunication for the transmission of written matter by the use of signal code.

Telemetering. The use of telecommunication for automatic indicating or recording measurements at a distance from the measuring instrument.

Telephony. A form of telecommunication set up for the transmission of speech, or in some cases, other sounds.

Television. A form of telecommunication for transmission of transient images of fixed or moving objects.

Temporary fixed station. A station established in a non-permanent mode (temporary) at a specified location for a short period of time, ranging up to one year. Temporary-fixed operations are itinerant in nature, and are not to be confused with mobile-type operations.

Universal Licensing System (ULS). The consolidated database, application filing system and processing system for all Wireless Telecommunications Services. The ULS offers Wireless Telecommunications Bureau (WTB) applicants and the general public electronic filing of all applications requests, and full public access to all WTB licensing data.

User or subscriber station. The station(s) in a microwave radio system operating at the users' premises on point-to-multipoint or multipoint-to-multipoint frequencies and communicating with one or more nodal stations.

Video entertainment material. The transmission of a video signal (*e.g.* United States Standard Monochrome or National Television Systems Committee 525-line television) and an associated audio signal which is designed primarily to amuse or entertain, such as movies and games.

[61 FR 26677, May 28, 1996, as amended at 61 FR 29693, June 12, 1996; 61 FR 31052, June 19, 1996; 61 FR 44181, Aug. 28, 1996; 62 FR 23163, Apr. 29, 1997; 63 FR 68981, Dec. 14, 1998; 65 FR 17448, Apr. 3, 2000; 65 FR 38326, June 20, 2000; 65 FR 59357, Oct. 5, 2000; 67 FR 43037, June 26, 2002; 68 FR 4955, Jan. 31, 2003; 77 FR 54432, Sept. 5, 2012]

Subpart B—Applications and Licenses

GENERAL FILING REQUIREMENTS

§ 101.4 Transition plan.

(a) All systems subject to parts 21 and 94 of this chapter in effect as of July 31, 1996, which are licensed or which are proposed in an application on file, as of July 31, 1996, are subject to the requirements under part 21 or part 94 of this chapter as contained in the CFR edition revised as of October 1, 1995 and amended in the FEDERAL REGISTER through July 31, 1996, as applicable, indefinitely.

(b) For purposes of this section, a ''system'' shall include:

(1) The originally licensed system;

(2) Any modification to the original system involving a change in antenna azimuth, antenna beam width, channel loading, emission, station location, antenna height, authorized power, or authorized frequencies;

(3) Additional links constructed to complete an integrated communications network; or

(4) Operationally connecting new facilities and/or frequencies.

(c) All radio frequency devices authorized pursuant to part 2 of this chapter as being in compliance with applicable part 21 or part 94 of this chapter in effect as of July 31, 1996, requirements can be used indefinitely

with systems licensed under this part 101.

[61 FR 26677, May 28, 1996, as amended at 65 FR 38326, June 20, 2000]

§ 101.5 Station authorization required.

(a) [Reserved]

(b) A separate application form must be filed electronically via ULS for each Digital Electronic Message Service (DEMS) Nodal Station. No license is required for a DEMS User Station or for a Multiple Address System (MAS) remote or mobile station. Authority for a DEMS Nodal Station licensee to serve a specific number of user stations to be licensed in the name of the carrier must be requested on FCC Form 601 filed for the DEMS Nodal Station. Authority for any number of MAS remotes and authority to serve MAS mobiles (to the extent this part permits such operation) within a specified area will be included in the authority for the MAS fixed master stations.

(c) [Reserved]

(d) For stations authorized under subpart H (Private Operational Fixed Point-to-Point Microwave Service), subpart I (Common Carrier Fixed Point-to-Point Microwave Service), and subpart L of this part (Local Multipoint Distribution Service), construction of new or modified stations may be initiated prior to grant of an authorization. As a condition to commencing construction under this paragraph (d), the Commission may, at any time and without hearing or notice, prohibit such construction for any reason. Any construction conducted under this paragraph is at the applicant's sole risk.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23164, Apr. 29, 1997; 63 FR 68981, Dec. 14, 1998; 68 FR 4955, Jan. 31, 2003]

§ 101.7 Eligibility for station license.

(a) A station license may not be granted to or held by a foreign government or by a representative of a foreign government.

(b) In the Common Carrier service, a station license may not be granted or held by:

(1) Any alien or the representative of any alien;

(2) Any corporation organized under the laws of any foreign government;

(3) Any corporation of which more than one-fifth of the capital stock is owned of record or voted by: Aliens or their representatives; a foreign government or representatives thereof; or any corporation organized under the laws of a foreign country; or

(4) Any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens or their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign government, if the Commission finds that the public interest will be served by the refusal or revocation of such license.

[61 FR 26677, May 28, 1996, as amended at 61 FR 55581, Oct. 28, 1996]

§ 101.17 Performance requirements for the 38.6–40.0 GHz frequency band.

(a) All 38.6–40.0 GHz band licensees must demonstrate substantial service at the time of license renewal. A licensee's substantial service showing should include, but not be limited to, the following information for each channel for which they hold a license, in each EA or portion of an EA covered by their license, in order to qualify for renewal of that license. The information provided will be judged by the Commission to determine whether the licensee is providing service which rises to the level of ''substantial.''

(1) A description of the 38.6–40.0 GHz band licensee's current service in terms of geographic coverage;

(2) A description of the 38.6–40.0 GHz band licensee's current service in terms of population served, as well as any additional service provided during the license term;

(3) A description of the 38.6–40.0 GHz band licensee's investments in its system(s) (type of facilities constructed and their operational status is required);

(b) Any 38.6–40.0 GHz band licensees adjudged not to be providing substantial service will not have their licenses renewed.

[65 FR 38327, June 20, 2000]

§ 101.21 Technical content of applications.

Applications, except FCC Form 175, must contain all technical information required by the application form and any additional information necessary to fully describe the proposed facilities and to demonstrate compliance with all technical requirements of the rules governing the radio service involved (see subparts C, F, G, I, J, and L of this part, as appropriate). The following paragraphs describe a number of technical requirements.

(a)–(d) [Reserved]

(e) Each application in the Private Operational Fixed Point-to-Point Microwave Service and the Common Carrier Fixed Point-to-Point Microwave Service must include the following information:

Applicant's name and address.
Transmitting station name.
Transmitting station coordinates.
Frequencies and polarizations to be added, changed or deleted.
Transmitting equipment, its stability, effective isotropic radiated power, emission designator, and type of modulation (digital).
Transmitting antenna(s), model, gain, and, if required, a radiation pattern provided or certified by the manufacturer.
Transmitting antenna center line height(s) above ground level and ground elevation above mean sea level.
Receiving station name.
Receiving station coordinates.
Receiving antenna(s), model, gain, and, if required, a radiation pattern provided or certified by the manufacturer.
Receiving antenna center line height(s) above ground level and ground elevation above mean sea level.
Path azimuth and distance.

NOTE: The position location of antenna sites shall be determined to an accuracy of no less than ±1 second in the horizontal dimensions (latitude and longitude) and ±1 meter in the vertical dimension (ground elevation) with respect to the National Spacial Reference System.

(f) All applicants for regular authorization must, before filing an application, major amendments to a pending application, or modifications to a license, prior coordinate the proposed frequency usage with existing users in the area and other applicants with previously filed applications in accordance with the procedures in § 101.103. In those frequency bands shared with the communication-satellite service, an applicant for a new station, for new points of communication, for the initial frequency assignment in a shared band for which coordination has not been previously effected, or for authority to modify the emission or radiation characteristics of an existing station in a manner that may increase the likelihood of harmful interference, must ascertain in advance whether the station(s) involved lie within the great circle coordination distance contours of an existing Earth station or one for which an application has been accepted for filing, and must coordinate his proposal with each such Earth station operator or applicant. For each potential interference path, the applicant must perform the computations required to determine that the expected level of interference to or from the terrestrial station does not exceed the maximum permissible interference power level in accordance with the technical standards and requirements of § 25.251 of this chapter. The Commission may, in the course of examining any application, require the submission of additional showings, complete with pertinent data and calculations in accordance with part 25 of this chapter, showing that harmful interference will not likely result from the proposed operation. (Technical characteristics of the Earth stations on file and coordination contour maps for those Earth stations will be kept on file for public inspection in the offices of the Commission's International Bureau in Washington, DC.)

(g) Each application in the Local Multipoint Distribution Service and 24 GHz Service must contain all technical information required by FCC Form 601 and any other applicable form or associated Public Notices and by any applicable rules in this part.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23164, Apr. 29, 1997; 63 FR 68981, Dec. 14, 1998; 65 FR 38327, June 20, 2000; 65 FR 59357, Oct. 5, 2000; 78 FR 25176, Apr. 29, 2013]

§ 101.23 Waiver of rules.

Waiver of these rules may be granted upon application or on the Commission's own motion in accordance with § 1.925 of this chapter.

[63 FR 68981, Dec. 14, 1998]

§ 101.31 Temporary and conditional authorizations.

(a) *Operation at temporary locations.* (1) Authorizations may be issued upon proper application for rendition of temporary service to subscribers under the following conditions:

(i) When a fixed station, authorized to operate at temporary locations, is to remain at a single location for more than 6 months, an application for a station authorization designating that single location as the permanent location shall be filed at least 90 days prior to the expiration of the 6 month period;

(ii) The station shall be used only for rendition of communication service at a remote point where the provision of wire facilities is not practicable within the required time frame; and

(iii) The antenna structure height employed at any location shall not exceed the criteria set forth in § 17.7 of this chapter unless, in each instance, authorization for use of a specific maximum antenna structure height for each location has been obtained from the Commission prior to erection of the antenna. See § 101.125.

(2) Applications for authorizations to operate stations at temporary locations under the provisions of this section shall be made upon FCC Form 601. Blanket applications may be submitted for the required number of transmitters. An application for authority to operate a fixed station at temporary locations must specify the precise geographic area within which the operation will be confined. The area specified must be defined as a radius of operation about a specific coordinate (latitude/longitude), or as a county, or as a State. Exception to this specific requirement may be made for exceptionally large areas, such as the continental United States. Sufficient data must be submitted to show the need for the proposed area of operation.

(3) Operations in the 17.8–19.7 GHz band for any services and in the 17.7–17.8 GHz band for MVPD operations are prohibited in the areas defined in § 1.924 of this chapter. Operations proposed in the areas defined in § 1.924 of this chapter may not commence without prior specific notification to, and authorization from, the Commission.

(b) *Conditional authorization.* (1) An applicant for a new point-to-point microwave radio station(s) or a modification of an existing station(s) in the 952.95–956.15, 956.55–959.75, 3,700–4,200; 5,925–6,425; 6,525–6,875; 6,875–7,125; 10,550–10,680; 10,700–11,700; 11,700–12,200; 12,700–13,150; 13,200–13,250; 17,700–19,700; and 21,800–22,000 MHz, and 23,000–23,200 MHz bands (see § 101.147(s) for specific service usage) may operate the proposed station(s) during the pendency of its applications(s) upon the filing of a properly completed formal application(s) that complies with subpart B of part 101 if the applicant certifies that the following conditions are satisfied:

(i) The frequency coordination procedures of § 101.103 have been successfully completed;

(ii) The antenna structure(s) has been previously studied by the Federal Aviation Administration and determined to pose no hazard to aviation safety as required by subpart B of part 17 of this chapter; or the antenna or tower structure does not exceed 6.1 meters above ground level or above an existing man-made structure (other than an antenna structure), if the antenna or tower has not been previously studied by the Federal Aviation Administration and cleared by the FCC;

(iii) The grant of the application(s) does not require a waiver of the Commission's rules:

(iv) The applicant has determined that the facility(ies) will not significantly affect the environment as defined in § 1.1307 of this chapter;

(v) The station site does not lie within 56.3 kilometers of any international border, within areas identified in §§ 1.924(a) through (d) of this chapter unless the affected entity consents in writing to conditional operation or, if for any services on frequencies in the 17.8–19.7 GHz band and for MVPD operations in the 17.7–17.8 GHz band, within any of the areas identified in § 1.924 of this chapter;

(vi) If operated on frequencies in the 10.6–10.68 GHz band, the station site does not lie within any of the following regions:

Name of region	Dimensions=radius in kilometers	Center-point
Kitt Peak, Arizona	60	N31–57–22; W111–36–42
Big Pine, California	60	N37–13–54; W118–16–34
Vandenburg AFB, California	75	N34–43–00; W120–34–00
Denver, Colorado	150	N39–43–00; W104–46–00
Washington, DC	150	N38–48–00; W76–52–00
Eglin AFB, Florida	50	N30–29–00; W86–32–00
Mauna Kea, Hawaii	60	N19–48–16; W155–27–29
North Liberty, Iowa	60	N41–46–17; W91–34–26
Maryland Point, Maryland	60	N38–22–26; W77–14–00
Hancock, New Hampshire	60	N42–56–01; W71–59–12
Los Alamos, New Mexico	60	N35–46–30; W106–14–42
Pie Town, New Mexico	60	N34–18–04; W108–07–07
Socorro, New Mexico	160	N34–04–43; W107–37–04
WSMR, New Mexico	75	N32–23–00; W106–29–00
Minot AFB, North Dakota	80	N48–15–00; W101–17–00
Arecibo, Puerto Rico	160	N18–20–37; W66–45–11
Fort Davis, Texas	60	N30–38–06; W103–56–39
St. Croix, Virgin Islands	60	N17–45–31; W64–35–03
Brewster, Washington	60	N48–07–53; W119–40–55
Green Bank, West Virginia	160	N38–25–59; W79–50–24

Note: Coordinates are referenced to North American Datum 1983 (NAD83).

(vii) With respect to the 21.8–22.1 GHz and 23.0–23.3 GHz band, the filed application(s) does not propose to operate on a frequency pair centered on other than 21.825/23.025 GHz, 21.875/23.075 GHz, 21.925/23.125 GHz, 21.975/23.175 GHz, 22.025/23.225 GHz or 22.075/23.275 GHz and does not propose to operate with an E.I.R.P. greater than 55 dBm. The center frequencies are shifted from the center frequencies listed above for certain bandwidths as follows: add 0.005 GHz for 20 MHz bandwidth channels, add 0.010 GHz for 30 megahertz bandwidth channels, and subtract 0.005 GHz for 40 MHz bandwidth channels. *See* specific channel listings in § 101.147(s).

(viii) The filed application(s) is consistent with the proposal that was coordinated pursuant to § 101.103.

(2) Conditional authority ceases immediately if the application(s) is returned by the Commission because it is not acceptable for filing.

(3) Conditional authorization does not prejudice any action the Commission may take on the subject application(s). Conditional authority is accepted with the express understanding that such authority may be modified or cancelled by the Commission at any time without hearing if, in the Commission's discretion, the need for such action arises. An applicant operating pursuant to this conditional authority assumes all risks associated with such operation, the termination or modification of the conditional authority, or the subsequent dismissal or denial of its applications(s).

[61 FR 26677, May 28, 1996, as amended at 62 FR 55538, Oct. 27, 1997; 63 FR 10779, Mar. 5, 1998; 63 FR 68981, Dec. 14, 1998; 65 FR 38327, June 20, 2000; 68 FR 4955, Jan. 31, 2003; 69 FR 17959, Apr. 6, 2004; 71 FR 69048, Nov. 29, 2006; 75 FR 41771, July 19, 2010; 76 FR 59571, Sept. 27, 2011]

PROCESSING OF APPLICATIONS

§ 101.45 Mutually exclusive applications.

(a) The Commission will consider applications to be mutually exclusive if their conflicts are such that the grant of one application would effectively preclude by reason of harmful electrical interference, or other practical reason, the grant of one or more of the other applications. The Commission will presume ''harmful electrical interference'' exists when the levels of § 101.105 are exceeded, or when there is a material impairment to service rendered to the public despite full cooperation in good faith by all applicants or parties to achieve reasonable technical adjustments which would avoid electrical conflict.

(b) A common carrier application, except in the Local Multipoint Distribution Service and in the 24 GHz Service, will be entitled to comparative consideration with one or more conflicting applications only if:

(1) The application is mutually exclusive with the other application; and

(2) The application is received by the Commission in a condition acceptable for filing by whichever ''cut-off'' date is earlier:

(i) Sixty (60) days after the date of the public notice listing the first of the conflicting applications as accepted for filing; or

(ii) One (1) business day preceding the day on which the Commission takes final action on the previously filed application (should the Commission act upon such application in the interval between thirty (30) and sixty (60) days after the date of its public notice).

(c) Whenever three or more applications are mutually exclusive, but not uniformly so, the earliest filed application established the date prescribed in paragraph (b)(2) of this section, regardless of whether or not subsequently filed applications are directly mutually exclusive with the first filed application. (For example, applications A, B, and C are filed in that order. A and B are directly mutually exclusive, B and C are directly mutually exclusive. In order to be considered comparatively with B, C must be filed within the ''cut-off'' period established by A even though C is not directly mutually exclusive with A.)

(d) Private operational fixed point-to-point microwave applications for authorization under this part will be entitled to comparative consideration with one or more conflicting applications in accordance with the provisions of § 1.227(b)(4) of this chapter.

(e) An application otherwise mutually exclusive with one or more previously filed applications, but filed after the appropriate date prescribed in paragraphs (b) or (d) of this section, will be returned without prejudice and will be eligible for refiling only after final action is taken by the Commission with respect to the previously filed application (or applications).

(f) For purposes of this section, any application (whether mutually exclusive or not) will be considered to be a newly filed application if it is amended by a major amendment (as defined by § 1.929 of this chapter), except under any of the following circumstances:

(1) The application has been designated for comparative hearing, or for comparative evaluation (pursuant to § 101.51 of this part), and the Commission or the presiding officer accepts the amendment pursuant to § 1.927 of this chapter;

(2) The amendment resolves frequency conflicts with authorized stations or other pending applications which would otherwise require resolution by hearing or by comparative evaluation pursuant to § 101.51 provided that the amendment does not create new or additional frequency conflicts;

(3) The amendment reflects only a change in ownership or control found by the Commission to be in the public interest, and for which a requested exemption from the ''cut-off'' requirements of this section is granted;

(4) The amendment reflects only a change in ownership or control which results from an agreement under § 1.935 of this chapter whereby two or more applicants entitled to comparative consideration of their applications join in one (or more) of the existing applications and request dismissal of their other application (or applications) to avoid the delay and cost of comparative consideration;

(5) The amendment corrects typographical, transcription, or similar clerical errors which are clearly demonstrated to be mistakes by reference to other parts of the application, and whose discovery does not create new or increased frequency conflicts; or

(6) The amendment does not create new or increased frequency conflicts, and is demonstrably necessitated by events which the applicant could not have reasonably foreseen at the time of filing, such as, for example:

(i) The loss of a transmitter or receiver site by condemnation, natural causes, or loss of lease or option;

(ii) Obstruction of a proposed transmission path caused by the erection of a new building or other structure; or

(iii) The discontinuance or substantial technological obsolescence of specified equipment, whenever the application has been pending before the Commission for two or more years from the date of its filing.

(g) Applicants for the 932.5–935/941.5–944 MHz bands shall select a frequency

pair. Applicants for these bands may select an unpaired frequency only upon a showing that spectrum efficiency will not be impaired and that unpaired spectrum is not available in other bands. During the initial filing window, frequency coordination is not required, except that an application for a frequency in the 942–944 MHz band must be coordinated to ensure that it does not affect an existing broadcast auxiliary service licensee. After the initial filing window, an applicant must submit evidence that frequency coordination has been performed with all licensees affected by the application. All frequency coordination must be performed in accordance with § 101.103. In the event of mutually exclusive applications occurring during the initial filing window for the 932.5–935/941.5–944 MHz bands, applicants shall be given the opportunity to resolve these situations by applying for an alternative frequency pair, if one is available. To the extent that there are no other available frequencies or to the extent that mutually exclusive applications remain after this process is concluded, lotteries shall be conducted for each frequency pair among all remaining mutually exclusive applications, assuming appropriate coordination with existing broadcast auxiliary stations can be concluded, where necessary. In the event of mutually exclusive applications being received for these bands on the same day after the initial filing window has closed and a subsequent filing window opened, lotteries shall be conducted for each frequency pair among all mutually exclusive applications.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23164, Apr. 29, 1997; 62 FR 24582, May 6, 1997; 63 FR 6103, Feb. 6, 1998; 63 FR 68982, Dec. 14, 1998; 65 FR 59357, Oct. 5, 2000]

§ 101.51 Comparative evaluation of mutually exclusive applications.

(a) In order to expedite action on mutually exclusive applications in services under this rules part where neither competitive bidding nor the random selection processes apply, the applicants may request the Commission to consider their applications without a formal hearing in accordance with the summary procedure outlined in paragraph (b) in this section if:

(1) The applications are entitled to comparative consideration pursuant to § 101.45;

(2) The applications have not been designated for formal evidentiary hearing; and

(3) The Commission determines, initially or at any time during the procedure outline in paragraph (b) of this section, that such procedure is appropriate, and that, from the information submitted and consideration of such other matters as may be officially noticed, there are no substantial and material questions of fact, presented (Other than those relating to the comparative merits of the applications) which would preclude a grant under § 1.915 of this chapter.

(b) Provided that the conditions of paragraph (a) of this section are satisfied, applicants may request the Commission to act upon their mutually exclusive applications without a formal hearing pursuant to the summary procedure outlined below:

(1) To initiate the procedure, each applicant will submit to the Commission a written statement containing:

(i) A waiver of the applicant's right to a formal hearing;

(ii) A request and agreement that, in order to avoid the delay and expense of a comparative formal hearing, the Commission should exercise its judgment to select from among the mutually exclusive applications that proposal (or proposals) which would best serve the public interest; and

(iii) The signature of a principal (and the principal's attorney if represented).

(2) After receipt of the written requests of all of the applicants the Commission (if it deems this procedure appropriate) will issue a notice designating the comparative criteria upon which the applications are to be evaluated and will request each applicant to submit, within a specified period of time, additional information concerning the applicant's proposal relative to the comparative criteria.

(3) Within thirty (30) days following the due date for filing this information, the Commission will accept concise and factual argument on the competing

proposals from the rival applicants, potential customers, and other knowledgeable parties in interest.

(4) Within fifteen (15) days following the due date for the filing of comments, the Commission will accept concise and factual replies from the rival applicants.

(5) From time to time during the course of this procedure the Commission may request additional information from the applicants and hold informal conferences at which all competing applicants will have the right to be represented.

(6) Upon evaluation of the applications, the information submitted, and such other matters as may be officially noticed the Commission will issue a decision granting one (or more) of the proposals which it concludes would best serve the public interest, convenience and necessity. The decision will report briefly and concisely the reasons for the Commission's selection and will deny the other application(s). This decision will be considered final.

[61 FR 26677, May 28, 1996, as amended at 63 FR 6104, Feb. 6, 1998; 63 FR 68982, Dec. 14, 1998]

LICENSE TRANSFERS, MODIFICATIONS, CONDITIONS AND FORFEITURES

§ 101.55 Considerations involving transfer or assignment applications.

(a) Except as provided for in paragraph (d) of this section, licenses not authorized pursuant to competitive bidding procedures may not be assigned or transferred prior to the completion of construction of the facility.

(b) [Reserved]

(c) At its discretion, the Commission may require the submission of an affirmative, factual showing (supported by affidavits of a person or persons with personal knowledge thereof) to demonstrate that the proposed assignor or transferor has not acquired an authorization or operated a station for the principal purpose of profitable sale rather than public service. This showing may include, for example, a demonstration that the proposed assignment or transfer is due to changed circumstances (described in detail) affecting the licensee subsequent to the acquisition of the license, or that the proposed transfer of radio facilities is incidental to a sale of other facilities or merger of interests.

(d) If a proposed transfer of radio facilities is incidental to a sale or other facilities or merger of interests, the showing specified under paragraph (c) of this section shall be submitted and include an additional exhibit that:

(1) Discloses complete details as to the sale of facilities or merger of interests;

(2) Segregates clearly by an itemized accounting, the amount of consideration involved in the sale of facilities or merger of interests; and

(3) Demonstrates that the amount of consideration assignable to the facilities or business interests involved represents their fair market value at the time of the transaction.

[61 FR 26677, May 28, 1996, as amended at 63 FR 6104, Feb. 6, 1998; 63 FR 68982, Dec. 14, 1998; 65 FR 38327, June 20, 2000; 68 FR 4955, Jan. 31, 2003]

§ 101.56 Partitioned service areas (PSAs) and disaggregated spectrum.

(a)(1) The holder of an EA authorization to provide service pursuant to the competitive bidding process and any incumbent licensee of rectangular service areas in the 38.6–40.0 GHz band may enter into agreements with eligible parties to partition any portion of its service area as defined by the partitioner and partitionee. Alternatively, licensees may enter into agreements or contracts to disaggregate any portion of spectrum, provided acquired spectrum is disaggregated according to frequency pairs.

(2)(i) Contracts must be filed with the Commission within 30 days of the date that such agreements are reached.

(ii) The contracts must include descriptions of the areas being partitioned or spectrum disaggregated. The partitioned service area shall be defined by coordinate points at every 3 seconds along the partitioned service area unless an FCC recognized service area is utilized (i.e., Metropolitan Service Area or Rural Service Area) or county lines are followed. If geographic coordinate points are used, they must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based

upon the 1983 North American Datum (NAD83). In the case where an FCC recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area.

(b) The eligibility requirements applicable to EA authorization holders also apply to those individuals and entities seeking partitioned or disaggregated spectrum authorizations.

(c) Subsequent to issuance of the authorization for a partitioned service area, the partitioned area will be treated as a separate protected service area.

(d)(1) When any area within an EA becomes a partitioned service area, the remaining counties and geopolitical subdivision within that EA will be subsequently treated and classified as a partitioned service area.

(2) At the time an EA is partitioned, the Commission shall cancel the EA authorization initially issued and issue a partitioned service area authorization to the former EA authorization holder.

(e) At the time a BTA is partitioned, the Commission shall cancel the BTA authorization initially issued and issue a partitioned service area authorization to the former BTA authorization holder.

(f) The duties and responsibilities imposed upon EA authorization holders in this part, apply to those licensees obtaining authorizations by partitioning or spectrum disaggregation.

(g) The build-out requirements for the partitioned service area or disaggregated spectrum shall be the same as applied to the EA authorization holder.

(h) The license term for the partitioned service area or disaggregated spectrum shall be the remainder of the period that would apply to the EA authorization holder.

(i) Licensees, including those using bidding credits in a competitive bidding procedure, shall have the authority to partition service areas or disaggregate spectrum.

[63 FR 6104, Feb. 6, 1998, as amended at 63 FR 68982, Dec. 14, 1998; 64 FR 45893, Aug. 23, 1999; 64 FR 59664, Nov. 3, 1999; 67 FR 45379, July 9, 2002]

EDITORIAL NOTE: At 64 FR 59664, Nov. 3, 1999, in § 101.56, paragraphs (d)(1) and (2) were redesignated as (d) and (e); however, paragraph (e) already exists and the change could not be made.

§ 101.61 Certain modifications not requiring prior authorization in the Local Multipoint Distribution Service and 24 GHz Service

In the Local Multipoint Distribution Service (LMDS) licensees may add, remove, or relocate facilities within the area authorized by the license without prior authorization. Upon request by an incumbent licensee or the Commission, an LMDS licensee shall furnish the technical parameters, location and coordinates of the completion of the addition, removal, relocation or modification of any of its facilities within the BTA. The LMDS licensee must provide such information within ten (10) days of receiving a written request. This section also applies to 24 GHz licensees that are licensed according to Economic Areas.

[65 FR 59357, Oct. 5, 2000]

§ 101.63 Period of construction; certification of completion of construction.

(a) Each Station, except in Multichannel Video Distribution and Data Service, Local Multipoint Distribution Services, 24 GHz Service, and the 38.6–40.0 GHz band, authorized under this part must be in operation within 18 months from the initial date of grant.

(b) For the 70 GHz, 80 GHz, and 90 GHz bands, the 12-month construction period will commence on the date of each registration of each individual link; adding links will not change the overall renewal period of the license.

(c) Failure to timely begin operation means the authorization cancels automatically.

(d) The frequencies associated with all point-to-multipoint authorizations which have cancelled automatically or otherwise been recovered by the Commission will again be made available for reassignment on a date and under terms set forth by Public Notice. See § 101.1331(d) for treatment of MAS incumbent site-by-site licenses recovered in EAs.

(e) Requests for extension of time may be granted upon a showing of good

cause pursuant to § 1.946(e) of this chapter.

(f) Construction of any authorized facility or frequency must be completed by the date specified in the license as pursuant to § 1.946 of this chapter.

(g) MVPD licensees which have both analog and digital emissions designators specified on the license and which already have, or may transition from analog to digital operations, or a combination of both, meet their completion of construction requirements and do not automatically surrender their license provided they are using either set of emissions. If the licensee has completed the transition to digital, the license can remove the unused analog emission designators the next time a modification or renewal application is filed.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23165, Apr. 29, 1997; 63 FR 6104, Feb. 6, 1998; 63 FR 68982, Dec. 14, 1998; 64 FR 45893, Aug. 23, 1999; 65 FR 17448, Apr. 3, 2000; 65 FR 38327, June 20, 2000; 65 FR 59357, Oct. 5, 2000; 69 FR 3266, Jan. 23, 2004; 69 FR 16832, Mar. 31, 2004; 71 FR 69048, Nov. 29, 2006]

§ 101.64 Service areas.

Service areas for 38.6–40.0 GHz service are Economic Areas (EAs) as defined below. EAs are delineated by the Regional Economic Analysis Division, Bureau of Economic Analysis, U.S. Department of Commerce. The Commerce Department organizes the 50 States and the District of Columbia into 172 EAs. Additionally, there are four EA-like areas: Guam and Northern Mariana Islands; Puerto Rico and the U.S. Virgin Islands; American Samoa and the Gulf of Mexico. A total of 175 authorizations (excluding the Gulf of Mexico EA-like area) will be issued for each channel block in the 39 GHz band.

[64 FR 45893, Aug. 23, 1999]

§ 101.65 Forfeiture and termination of station authorizations.

(a) In addition to the provisions of § 1.955 of this chapter, a license will be automatically forfeited in whole or in part without further notice to the licensee upon the voluntary removal or alteration of the facilities, so as to render the station not operational for a period of 30 days or more.

(b) Pursuant to § 1.955 of this chapter, if a station licensed under this part discontinues operation on a permanent basis, the licensee must cancel the license. For purposes of this section, any station which has not operated for one year or more is considered to have been permanently discontinued. *See* § 101.305 for additional rules regarding temporary and permanent discontinuation of service.

[63 FR 68983, Dec. 14, 1998]

§ 101.67 License period.

Licenses for stations authorized under this part will be issued for a period not to exceed 10 years. Unless otherwise specified by the Commission, the expiration of regular licenses shall be on the date (month and day) selected by licensees in the year of expiration.

POLICIES GOVERNING MICROWAVE RELOCATION FROM THE 1850–1990 AND 2110–2200 MHZ BANDS

§ 101.69 Transition of the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands from the fixed microwave services to personal communications services and emerging technologies.

Fixed Microwave Services (FMS) in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands have been allocated for use by emerging technology (ET) services, including Personal Communications Services (PCS), Advanced Wireless Services (AWS), and Mobile Satellite Services (MSS). The rules in this section provide for a transition period during which ET licensees may relocate existing FMS licensees using these frequencies to other media or other fixed channels, including those in other microwave bands.

(a) ET licensees may negotiate with FMS licensees authorized to use frequencies in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands, for the purpose of agreeing to terms under which the FMS licensees would:

(1) Relocate their operations to other fixed microwave bands or other media; or alternatively

(2) Accept a sharing arrangement with the ET licensee that may result in

an otherwise impermissible level of interference to the FMS operations.

(b)–(c) [Reserved]

(d) Relocation of FMS licensees in the 2110–2150 and 2160–2200 MHz band will be subject to mandatory negotiations only. Except as provided in paragraph (e) of this section, mandatory negotiation periods are defined as follows:

(1) Non-public safety incumbents will have a two-year mandatory negotiation period; and

(2) Public safety incumbents will have a three-year mandatory negotiation period.

(e) Relocation of FMS licensees by Mobile-Satellite Service (MSS) licensees will be subject to mandatory negotiations only.

(1) The mandatory negotiation period for non-public safety incumbents will end December 8, 2004.

(2) The mandatory negotiation period for public safety incumbents will end December 8, 2005.

(f) AWS licensees operating in the 1910–1920 MHz and 2175–2180 MHz bands will follow the requirements and procedures set forth in ET Docket No. 00–258 and WT Docket No. 04–356.

(g) If no agreement is reached during the mandatory negotiation period, an ET licensee may initiate involuntary relocation procedures. Under involuntary relocation, the incumbent is required to relocate, provided that the ET licensee meets the conditions of § 101.75.

[62 FR 12758, Mar. 18, 1997, as amended at 65 FR 48182, Aug. 7, 2000; 68 FR 3464, Jan. 24, 2003; 68 FR 68253, Dec. 8, 2003; 69 FR 62622, Oct. 27, 2004; 71 FR 29842, May 24, 2006; 78 FR 8271, Feb. 5, 2013; 78 FR 48621, Aug. 9, 2013]

§ 101.71 [Reserved]

§ 101.73 Mandatory negotiations.

(a) A mandatory negotiation period may be initiated at the option of the ET licensee. Relocation of FMS licensees by Mobile Satellite Service (MSS) operators and AWS licensees in the 2110–2150 MHz and 2160–2200 MHz bands will be subject to mandatory negotiations only.

(b) Once mandatory negotiations have begun, an FMS licensee may not refuse to negotiate and all parties are required to negotiate in good faith. Good faith requires each party to provide information to the other that is reasonably necessary to facilitate the relocation process. In evaluating claims that a party has not negotiated in good faith, the FCC will consider, *inter alia*, the following factors:

(1) Whether the ET licensee has made a *bona fide* offer to relocate the FMS licensee to comparable facilities in accordance with Section 101.75(b);

(2) If the FMS licensee has demanded a premium, the type of premium requested (*e.g.*, whether the premium is directly related to relocation, such as system-wide relocations and analog-to-digital conversions, versus other types of premiums), and whether the value of the premium as compared to the cost of providing comparable facilities is disproportionate (*i.e.*, whether there is a lack of proportion or relation between the two);

(3) What steps the parties have taken to determine the actual cost of relocation to comparable facilities;

(4) Whether either party has withheld information requested by the other party that is necessary to estimate relocation costs or to facilitate the relocation process.

(c) Any party alleging a violation of our good faith requirement must attach an independent estimate of the relocation costs in question to any documentation filed with the Commission in support of its claim. An independent cost estimate must include a specification for the comparable facility and a statement of the costs associated with providing that facility to the incumbent licensee.

(d) *Provisions for Relocation of Fixed Microwave Licensees in the 2110–2150 and 2160–2200 MHz bands.* A separate mandatory negotiation period will commence for each FMS licensee when an ET licensee informs that FMS licensee in writing of its desire to negotiate. Mandatory negotiations will be conducted with the goal of providing the FMS licensee with comparable facilities defined as facilities possessing the following characteristics:

(1) *Throughput.* Communications throughput is the amount of information transferred within a system in a

given amount of time. If analog facilities are being replaced with analog, comparable facilities provide an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, comparable facilities provide equivalent data loading bits per second (bps).

(2) *Reliability*. System reliability is the degree to which information is transferred accurately within a system. Comparable facilities provide reliability equal to the overall reliability of the FMS system. For digital systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmission, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog system is replaced with a digital system, only the resulting frequency response, harmonic distortion, signal-to-noise and its reliability will be considered in determining comparable reliability.

(3) *Operating Costs*. Operating costs are the cost to operate and maintain the FMS system. ET licensees would compensate FMS licensees for any increased recurring costs associated with the replacement facilities (*e.g.*, additional rental payments, and increased utility fees) for five years after relocation. ET licensees could satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FMS licensee would be equivalent to the 2 GHz system in order for the replacement system to be comparable.

[61 FR 29694, June 12, 1996, as amended at 62 FR 12758, Mar. 18, 1997; 65 FR 48182, Aug. 7, 2000; 68 FR 3464, Jan. 24, 2003; 68 FR 68253, Dec. 8, 2003; 69 FR 62622, Oct. 27, 2004; 71 FR 29842, May 24, 2006; 78 FR 8272, Feb. 5, 2013; 78 FR 48621, Aug. 9, 2013]

§ 101.75 Involuntary relocation procedures.

(a) If no agreement is reached during the mandatory negotiation period, an ET licensee may initiate involuntary relocation procedures under the Commission's rules. ET licensees are obligated to pay to relocated only the specific microwave links to which their systems pose an interference problem. Under involuntary relocation, the FMS licensee is required to relocate, provided that the ET licensee:

(1) Guarantees payment of relocation costs, including all engineering, equipment, site and FCC fees, as well as any legitimate and prudent transaction expenses incurred by the FMS licensee that are directly attributable to an involuntary relocation, subject to a cap of two percent of the hard costs involved. Hard costs are defined as the actual costs associated with providing a replacement system, such as equipment and engineering expenses. ET licensees are not required to pay FMS licensees for internal resources devoted to the relocation process. ET licensees are not required to pay for transaction costs incurred by FMS licensees during the voluntary or mandatory periods once the involuntary period is initiated, or for fees that cannot be legitimately tied to the provision of comparable facilities;

(2) Completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave frequencies and frequency coordination; and

(3) Builds the replacement system and tests it for comparability with the existing 2 GHz system.

(b) *Comparable facilities*. The replacement system provided to an incumbent during an involuntary relocation must be at least equivalent to the existing FMS system with respect to the following three factors:

(1) *Throughput*. Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, the ET licensee is required to provide the FMS licensee with an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, the ET licensee must provide the FMS licensee with equivalent data loading bits per second (bps). ET licensees must provide FMS licensees with enough throughput to satisfy the FMS licensee's system use at the time

of relocation, not match the total capacity of the FMS system.

(2) *Reliability*. System reliability is the degree to which information is transferred accurately within a system. ET licensees must provide FMS licensees with reliability equal to the overall reliability of their system. For digital data systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmissions, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog voice system is replaced with a digital voice system, only the resulting frequency response, harmonic distortion, signal-to-noise ratio and its reliability will be considered in determining comparable reliability.

(3) *Operating costs*. Operating costs are the cost to operate and maintain the FMS system. ET licensees must compensate FMS licensees for any increased recurring costs associated with the replacement facilities (*e.g.*, additional rental payments, increased utility fees) for five years after relocation. ET licensees may satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FMS licensee must be equivalent to the 2 GHz system in order for the replacement system to be considered comparable.

(c) The FMS licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff.

(d) *Twelve-month trial period*. If, within one year after the relocation to new facilities, the FMS licensee demonstrates that the new facilities are not comparable to the former facilities, the ET licensee must remedy the defects or pay to relocate the microwave licensee to one of the following: its former or equivalent 2 GHz channels, another comparable frequency band, a land-line system, or any other facility that satisfies the requirements specified in paragraph (b) of this section. This trial period commences on the date that the FMS licensee begins full operation of the replacement link. If the FMS licensee has retained its 2 GHz authorization during the trial period, it must return the license to the Commission at the end of the twelve months. FMS licensees relocated from the 2110–2150 and 2160–2200 MHz bands may not be returned to their former 2 GHz channels. All other remedies specified in paragraph (d) are available to FMS licensees relocated from the 2110–2150 MHz and 2160–2200 MHz bands, and may be invoked whenever the FMS licensee demonstrates that its replacement facility is not comparable, subject to no time limit.

[61 FR 29694, June 12, 1996, as amended at 65 FR 48183, Aug. 7, 2000; 68 FR 3464, Jan. 24, 2003; 71 FR 29842, May 24, 2006]

§ 101.77 Public safety licensees in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands.

(a) In order for public safety licensees to qualify for a three year mandatory negotiation period as defined in § 101.69(d)(2), the department head responsible for system oversight must certify to the ET licensee requesting relocation that:

(1) The agency is a Police licensee, a Fire Licensee, or an Emergency Medical Licensee as defined in § 90.7 of this chapter, or meets the eligibility requirements of § 90.20(a)(2) of this chapter, except for § 90.20(a)(2)(ii) of this chapter, or that it is a licensee of other part 101 facilities licensed on a primary basis under the eligibility requirements of part 90, subpart B of this chapter; and

(2) The majority of communications carried on the facilities at issue involve safety of life and property.

(b) A public safety licensee must provide certification within thirty (30) days of a request from a ET licensee, or the ET licensee may presume that special treatment is inapplicable. If a public safety licensee falsely certifies to an ET licensee that it qualifies for the extended time periods, this licensee will be in violation of the Commission's rules and will subject to appropriate penalties, as well as immediately subject to the non-public safety time periods.

[61 FR 29695, June 12, 1996, as amended at 62 FR 12758, Mar. 18, 1997; 62 FR 18936, Apr. 17, 1997; 71 FR 29842, May 24, 2006]

§ 101.79 Sunset provisions for licensees in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands.

(a) FMS licensees will maintain primary status in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands unless and until an ET licensee requires use of the spectrum. ET licensees are not required to pay relocation costs after the relocation rules sunset. Once the relocation rules sunset, an ET licensee may require the incumbent to cease operations, provided that the ET licensee intends to turn on a system within interference range of the incumbent, as determined by TIA TSB 10–F (for terrestrial-to-terrestrial situations) or TIA TSB 86 (for MSS satellite-to-terrestrial situations) or any standard successor. ET licensee notification to the affected FMS licensee must be in writing and must provide the incumbent with no less than six months to vacate the spectrum. After the six-month notice period has expired, the FMS licensee must turn its license back into the Commission, unless the parties have entered into an agreement which allows the FMS licensee to continue to operate on a mutually agreed upon basis. The date that the relocation rules sunset is determined as follows:

(1) For the 2110–2150 MHz and 2160–2175 MHz and 2175–2180 MHz bands, ten years after the first ET license is issued in the respective band; and

(2) For the 2180–2200 MHz band, for MSS/ATC December 8, 2013 (*i.e.*, ten years after the mandatory negotiation period begins for MSS/ATC operators in the service), and for ET licensees authorized under part 27 ten years after the first part 27 license is issued in the band. To the extent that an MSS operator is also an ET licensee authorized under part 27, the part 27 sunset applies to its relocation and cost sharing obligations should the two sets of obligations conflict.

(b) If the parties cannot agree on a schedule or an alternative arrangement, requests for extension will be accepted and reviewed on a case-by-case basis. The Commission will grant such extensions only if the incumbent can demonstrate that:

(1) It cannot relocate within the six-month period (*e.g.*, because no alternative spectrum or other reasonable option is available), and;

(2) The public interest would be harmed if the incumbent is forced to terminate operations (*e.g.*, if public safety communications services would be disrupted).

[61 FR 29695, June 12, 1996, as amended at 62 FR 12758, Mar. 18, 1997; 68 FR 68254, Dec. 8, 2003; 71 FR 29842, May 24, 2006; 78 FR 8272, Feb. 5, 2013]

§ 101.81 Future licensing in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands.

After April 25, 1996, all major modifications and extensions to existing FMS systems in the 1850–1990 MHz, 2110–2150 MHz, and 2160–2200 MHz bands will be authorized on a secondary basis to ET systems. All other modifications will render the modified FMS license secondary to ET operations, unless the incumbent affirmatively justifies primary status and the incumbent FMS licensee establishes that the modification would not add to the relocation costs of ET licensees. Incumbent FMS licensees will maintain primary status for the following technical changes:

(a) Decreases in power;

(b) Minor changes (increases or decreases) in antenna height;

(c) Minor location changes (up to two seconds);

(d) Any data correction which does not involve a change in the location of an existing facility;

(e) Reductions in authorized bandwidth;

(f) Minor changes (increases or decreases) in structure height;

(g) Changes (increases or decreases) in ground elevation that do not affect centerline height;

(h) Minor equipment changes.

[61 FR 29695, June 12, 1996, as amended at 62 FR 12759, Mar. 18, 1997; 65 FR 38327, June 20, 2000]

§ 101.82 Reimbursement and relocation expenses in the 2110–2150 MHz and 2160–2200 MHz bands.

(a) Reimbursement and relocation expenses for the 2110–2130 MHz and 2160–2200 MHz bands are addressed in §§ 27.1160–27.1174.

(b) *Cost-sharing obligations between AWS and MSS (space-to-Earth downlink).*

Whenever an ET licensee (AWS or Mobile Satellite Service for space-to-Earth downlink in the 2130–2150 or 2180–2200 MHz bands) relocates an incumbent paired microwave link with one path in the 2130–2150 MHz band and the paired path in the 2180–2200 MHz band, the relocator is entitled to reimbursement of 50 percent of its relocation costs (see paragraph (e)) of this section from any other AWS licensee or MSS space-to-Earth downlink operator which would have been required to relocate the same fixed microwave link as set forth in paragraphs (c) and (d) of this section.

(c) *Cost-sharing obligations for MSS (space-to-Earth downlinks).* For an MSS space-to-Earth downlink, the cost-sharing obligation is based on the interference criteria for relocation, *i.e.*, TIA TSB 86 or any standard successor, relative to the relocated microwave link. Subsequently entering MSS space-to-Earth downlink operators must reimburse AWS or MSS space-to-Earth relocators (see paragraph (e)) of this section before the later entrant may begin operations in these bands, unless the later entrant can demonstrate that it would not have interfered with the microwave link in question.

(d) *Cost-sharing obligations among terrestrial stations.* For terrestrial stations (AWS), cost-sharing obligations are governed by §§ 27.1160 through 27.1174 of this chapter; provided, however, that MSS operators are not obligated to reimburse voluntarily relocating FMS incumbents in the 2180–2200 MHz band. (AWS reimbursement and cost-sharing obligations relative to voluntarily relocating FMS incumbents are governed by § 27.1166 of this chapter).

(e) The total costs of which 50 percent is to be reimbursed will not exceed $250,000 per paired fixed microwave link relocated, with an additional $150,000 permitted if a new or modified tower is required.

[71 FR 29843, May 24, 2006, as amended at 78 FR 8272, Feb. 5, 2013]

POLICIES GOVERNING FIXED SERVICE RELOCATION FROM THE 18.58–19.30 GHZ BAND

SOURCE: 65 FR 54173, Sept. 7, 2000, unless otherwise noted.

§ 101.83 Modification of station license.

Permissible changes in equipment operating in the band 18.3–19.3 GHz: Notwithstanding other provisions of this section, stations that remain co-primary under the provisions of § 101.147(r) may not make modifications to their systems that increase interference to satellite earth stations, or result in a facility that would be more costly to relocate.

[68 FR 16968, Apr. 8, 2003]

§ 101.85 Transition of the 18.3–19.3 GHz band from the terrestrial fixed services to the fixed-satellite service (FSS).

Fixed services (FS) frequencies in the 18.3–19.3 GHz bands listed in §§ 21.901(e), 74.502(c), 74.602(g), and 78.18(a)(4) and § 101.147(a) and (r) of this chapter have been allocated for use by the fixed-satellite service (FSS). The rules in this section provide for a transition period during which FSS licensees may relocate existing FS licensees using these frequencies to other frequency bands, media or facilities.

(a) FSS licensees may negotiate with FS licensees authorized to use frequencies in the 18.3–19.30 GHz bands for the purpose of agreeing to terms under which the FS licensees would:

(1) Relocate their operations to other frequency bands, media or facilities; or alternatively

(2) Accept a sharing arrangement with the FSS licensee that may result in an otherwise impermissible level of interference to the FSS operations.

(b)(1) FS operations in the 18.3–18.58 GHz band that remain co-primary under the provisions of §§ 21.901(e), 74.502(c), 74.602(d), 78.18(a)(4) and 101.147(r) of this chapter will continue to be co-primary with the FSS users of this spectrum until November 19, 2012 or until the relocation of the fixed service operations, whichever occurs sooner.

(2) FS operations in the 18.58–19.3 GHz band that remain co-primary under the

provisions of §§21.901(e), 74.502(c), 74.602(d), 78.18(a)(4) and 101.147(r) of this chapter will continue to be co-primary with the FSS users of this spectrum until June 8, 2010 or until the relocation of the fixed service operations, whichever occurs sooner, except for operations in the band 19.26–19.3 GHz and low power systems operating pursuant to §101.47(r)(10), which shall operate on a co-primary basis until October 31, 2011.

(3) If no agreement is reached during the negotiations pursuant to §101.85(a), an FSS licensee may initiate relocation procedures. Under the relocation procedures, the incumbent is required to relocate, provided that the FSS licensee meets the conditions of §101.91.

(c) Negotiation periods are defined as follows:

(1) Non-public safety incumbents will have a two-year negotiation period.

(2) Public safety incumbents will have a three-year negotiation period.

[65 FR 54173, Sept. 7, 2000, as amended at 66 FR 63516, Dec. 7, 2001; 68 FR 16968, Apr. 8, 2003]

§101.89 Negotiations.

(a) The negotiation is triggered by the fixed-satellite service (FSS) licensee, who must contact the fixed services (FS) licensee and request that negotiations begin.

(b) Once negotiations have begun, an FS licensee may not refuse to negotiate and all parties are required to negotiate in good faith. Good faith requires each party to provide information to the other that is reasonably necessary to facilitate the relocation process. In evaluating claims that a party has not negotiated in good faith, the FCC will consider, inter alia, the following factors:

(1) Whether the FSS licensee has made a bona fide offer to relocate the FS licensee to comparable facilities in accordance with §101.91(b);

(2) If the FS licensee has demanded a premium, the type of premium requested (e.g., whether the premium is directly related to relocation, such as system-wide relocations and analog-to-digital conversions, versus other types of premiums), and whether the value of the premium as compared to the cost of providing comparable facilities is disproportionate (i.e., whether there is a lack of proportion or relation between the two);

(3) What steps the parties have taken to determine the actual cost of relocation to comparable facilities;

(4) Whether either party has withheld information requested by the other party that is necessary to estimate relocation costs or to facilitate the relocation process.

(c) Any party alleging a violation of our good faith requirement must attach an independent estimate of the relocation costs in question to any documentation filed with the Commission in support of its claim. An independent cost estimate must include a specification for the comparable facility and a statement of the costs associated with providing that facility to the incumbent licensee.

(d) Negotiations will commence when the FSS licensee informs the FS licensee in writing of its desire to negotiate. Negotiations will be conducted with the goal of providing the FS licensee with comparable facilities, defined as facilities possessing the following characteristics:

(1) *Throughput.* Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, the FSS licensee is required to provide the FS licensee with an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, the FSS licensee must provide the FS licensee with equivalent data loading bits per second (bps). FSS licensees must provide FS licensees with enough throughput to satisfy the FS licensee's system use at the time of relocation, not match the total capacity of the FS system.

(2) *Reliability.* System reliability is the degree to which information is transferred accurately within a system. FSS licensees must provide FS licensees with reliability equal to the overall reliability of their system. For digital data systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmissions, it is measured by the

percent of time that audio signal quality meets an established threshold. If an analog voice system is replaced with a digital voice system, only the resulting frequency response, harmonic distortion, signal-to-noise ratio and its reliability will be considered in determining comparable reliability.

(3) *Operating costs.* Operating costs are the cost to operate and maintain the FS system. FSS licensees must compensate FS licensees for any increased recurring costs associated with the replacement facilities (e.g., additional rental payments, increased utility fees) for five years after relocation. FSS licensees may satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FS licensee must be equivalent to the 18 GHz system in order for the replacement system to be considered comparable.

§ 101.91 Involuntary relocation procedures.

(a) If no agreement is reached during the negotiations period, an FSS licensee may initiate relocation procedures under the Commission's rules. FSS licensees are obligated to pay to relocate only the specific microwave links from which their systems may receive interference. Under these procedures, the FS licensee is required to relocate, provided that the FSS licensee:

(1) Guarantees payment of relocation costs, including all engineering, equipment, site and FCC fees, as well as any legitimate and prudent transaction expenses incurred by the FS licensee that are directly attributable to the relocation, subject to a cap of two percent of the hard costs involved. Hard costs are defined as the actual costs associated with providing a replacement system, such as equipment and engineering expenses. FSS licensees are not required to pay FS licensees for internal resources devoted to the relocation process. FSS licensees are not required to pay for transaction costs incurred by FS licensees during the negotiations once the negotiation is initiated, or for fees that cannot be legitimately tied to the provision of comparable facilities;

(2) Completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave frequencies and frequency coordination; and

(3) Builds the replacement system and tests it for comparability with the existing 18 GHz system.

(b) *Comparable facilities.* The replacement system provided to an incumbent during a relocation must be at least equivalent to the existing FS system with respect to the following three factors:

(1) *Throughput.* Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, the FSS licensee is required to provide the FS licensee with an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, the FSS licensee must provide the FS licensee with equivalent data loading bits per second (bps). FSS licensees must provide FS licensees with enough throughput to satisfy the FS licensee's system use at the time of relocation, not match the total capacity of the FS system.

(2) *Reliability.* System reliability is the degree to which information is transferred accurately within a system. FSS licensees must provide FS licensees with reliability equal to the overall reliability of their system. For digital data systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmissions, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog voice system is replaced with a digital voice system, only the resulting frequency response, harmonic distortion, signal-to-noise ratio and its reliability will be considered in determining comparable reliability.

(3) *Operating costs.* Operating costs are the cost to operate and maintain the FS system. FSS licensees must compensate FS licensees for any increased recurring costs associated with

the replacement facilities (e.g., additional rental payments, increased utility fees) for five years after relocation. FSS licensees may satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FS licensee must be equivalent to the 18 GHz system in order for the replacement system to be considered comparable.

(c) The FS licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff. The FS licensee may take up to 12 months to make such adjustments and perform such testing.

(d) If the FS licensee demonstrates to the Commission that the new facilities are not comparable to the former facilities, the Commission may require the FSS licensee to further modify or replace the FS licensee's equipment.

[65 FR 54173, Sept. 7, 2000, as amended at 66 FR 63516, Dec. 7, 2001]

§ 101.95 Sunset provisions for licensees in the 18.30–19.30 GHz band.

(a) FSS licensees are not required to pay relocation costs after the relocation rules sunset (see §§ 74.502(c), 74.602(g), and 78.18(a)(4) of this chapter, and 101.147 (a) and (r)). Once the relocation rules sunset, an FSS licensee may require the incumbent to cease operations, provided that the FSS licensee intends to turn on a system within interference range of the incumbent, as determined by TIA Bulletin 10–F or any standard successor. FSS licensee notification to the affected FS licensee must be in writing and must provide the incumbent with no less than six months to vacate the spectrum. After the six-month notice period has expired, the FS licensee must turn its license back into the Commission, unless the parties have entered into an agreement which allows the FS licensee to continue to operate on a mutually agreed upon basis.

(b) If the parties cannot agree on a schedule or an alternative arrangement, requests for extension will be accepted and reviewed on a case-by-case basis. The Commission will grant such extensions only if the incumbent can demonstrate that:

(1) It cannot relocate within the six-month period (e.g., because no alternative spectrum or other reasonable option is available); and

(2) The public interest would be harmed if the incumbent is forced to terminate operations (e.g., if public safety communications services would be disrupted).

§ 101.97 Future licensing in the 18.30–19.30 GHz band.

(a) All major modifications and extensions to existing FS systems in the 18.3–18.58 band after November 19, 2002, or in the 18.58–19.30 band after June 8, 2000 (with the exception of certain low power operations authorized under § 101.147(r)(10)) will be authorized on a secondary basis to FSS systems. All other modifications will render the modified FS license secondary to FSS operations, unless the incumbent affirmatively justifies primary status and the incumbent FS licensee establishes that the modification would not add to the relocation costs for FSS licensees. Incumbent FS licensees will maintain primary status for the following technical changes:

(1) Decreases in power;

(2) Minor changes (increases or decreases) in antenna height;

(3) Minor location changes (up to two seconds);

(4) Any data correction which does not involve a change in the location of an existing facility;

(5) Reductions in authorized bandwidth;

(6) Minor changes (increases or decreases) in structure height;

(7) Changes (increases or decreases) in ground elevation that do not affect centerline height;

(8) Minor equipment changes.

(9) Changes in ownership or control.

(b) The provisions of § 101.83 are applicable, notwithstanding any other provisions of this section.

[65 FR 54173, Sept. 7, 2000, as amended at 66 FR 63516, Dec. 7, 2001; 68 FR 19698, Apr. 8, 2003]

Subpart C—Technical Standards

§ 101.101 Frequency availability.

Frequency band (MHz)	Radio service				
	Common carrier (Part 101)	Private radio (Part 101)	Broadcast auxiliary (Part 74)	Other (Parts 15, 21, 22, 24, 25, 74, 78 & 100)	Notes
928–929	MAS	MAS		PRS.	
932.0–932.5	MAS	MAS		PRS.	
932.5–935.0	CC	OFS			(1).
941.0–941.5	MAS	MAS		PRS.	
941.5–944.0	CC	OFS	Aural BAS		(1).
952–958		OFS/MAS		PRS.	
958–960	MAS	OFS.			
1850–1990		OFS		PCS.	
2110–2130	CC			PET.	
2130–2150		OFS		PET.	
2160–2180	CC			ET.	
2180–2200		OFS		PET.	
2450–2500	CC	OFS	TV BAS	ISM	F/M/TF
2650–2690		OFS		MDS/ITFS.	
3700–4200	CC LTTS	OFS		SAT.	
5925–6425	CC LTTS	OFS		SAT.	
6425–6525	LTTS	OFS	TV BAS	CARS	M.
6525–6875	CC	OFS.			
6875–7125	CC	OFS	TV BAS	CARS.	
10,550–10,680	CC	OFS DEMS.			
10,700–11,700	CC	OFS		SAT.	
12,200–12,700	MVDDS	MVDDS, POFS		DBS, NGSO FSS.	
12,700–13,250	CC LTTS	OFS	TV BAS	CARS	F/M/TF.
17,700–18,580	CC	OFS	TV BAS	SAT CARS.	
17,700–18,300	CC	OFS	TV BAS	CARS.	
18,300–18,580	CC	OFS	TV BAS	CARS SAT.	
18,580–18,820	CC	OFS	Aural BAS	SAT.	
18,820–18,920	CC	OFS		SAT	
18,920–19,160	CC	OFS	Aural BAS	SAT.	
19,160–19,260	CC	OFS		SAT	
19,260–19,700	CC	OFS	TV BAS	CARS SAT.	
21,200–23,600	CC LTTS	OFS			TF.
24,250–25,250	CC	OFS.			
27,500–28,350	LMDS	LMDS.			
29,100–29,250	LMDS	LMDS		SAT.	
31,000–31,300	CC LMDS LTTS	OFS LMDS			F/M/TF.
38,600–40,000	CC	OFS	TV BAS		F/M/TF
71,000–76,000	CC	OFS		25	F/M/TF
81,000–86,000	CC	OFS		25	F/M/TF
92,000–95,000	CC	OFS		15	F/M/TF.

BAS: Broadcast Auxiliary Service—(Part 74)
CARS: Cable Television Relay Service—(Part 78)
CC: Common Carrier Fixed Point-to-Point Microwave Service—(Part 101, Subparts C & I)
DBS: Direct Broadcast Satellite—(Part 100)
DEMS: Digital Electronic Message Service—(Part 101, Subpart G)
ISM: Industrial, Scientific & Medical—(Part 18)
ITFS: Instructional Television Fixed Service—(Part 74)
LTTS: Local Television Transmission Service—(Part 101, Subpart J)
MAS: Multiple Address System—(Part 101)
MDS: Multipoint Distribution Service—(Part 21)
OFS: Private Operational Fixed Point-to-Point Microwave Service—(Part 101, Subparts C & H)
PCS: Personal Communications Service—(Part 24)
PET: Emerging Technologies (per ET Dkt. No. 92–9, not yet assigned)
PRS: Paging and Radiotelephone Service—(Part 22, Subpart E)
SAT: Fixed Satellite Service—(Part 25)
Notes:

F—Fixed
M—Mobile
TF—Temporary Fixed
(1)—Applications for frequencies in the 932.5–935/941.5–944 MHz bands may be filed initially during a one-week period to be announced by public notice. After these applications have been processed, the Commission will announce by public notice a filing date for remaining frequencies. From this filing date forward, applications will be processed on a daily first-come, first-served basis.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23165, Apr. 29, 1997; 62 FR 24582, May 6, 1997; 65 FR 38327, June 20, 2000; 65 FR 54175, Sept. 7, 2000; 65 FR 59357, Oct. 5, 2000; 67 FR 43037, June 28, 2002; 69 FR 3266, Jan. 23, 2004; 69 FR 72047, Dec. 10, 2004; 70 FR 4787, Jan. 31, 2005; 76 FR 59571, Sept. 27, 2011]

§ 101.103 Frequency coordination procedures.

(a) Assignment of frequencies will be made only in such a manner as to facilitate the rendition of communication service on an interference-free basis in each service area. Unless otherwise indicated, each frequency available for use by stations in these services will be assigned exclusively to a single applicant in any service area. All applicants for, and licensees of, stations in these services must cooperate in the selection and use of the frequencies assigned in order to minimize interference and thereby obtain the most effective use of the authorized facilities. In the event harmful interference occurs or appears likely to occur between two or more radio systems and such interference cannot be resolved between the licensees thereof, the Commission may specify a time sharing arrangement for the stations involved or may, after notice and opportunity for hearing, require the licensees to make such changes in operating techniques or equipment as it may deem necessary to avoid such interference.

(b)(1) Operations in the bands 31,000–31,075 MHz and 31,225–31,300 MHz licensed prior to March 11, 1997, were licensed on an unprotected basis and are subject to harmful interference from similarly licensed operations in that band.

(i) Operations licensed in the Local Mulitpoint Distribution Service and those operations licensed prior to March 11, 1997, except in the Local Television Transmission Service, operating in these bands are equally protected against harmful interference from each other.

(ii) In the case of operations licensed prior to March 11, 1997, except in the Local Television Transmission Service, that are licensed on a point-to-radius basis, LMDS licensees shall be subject to the protection requirement established in this section in the case of existing links operated by such licensees, and in the case of links added by such licensees in the future in accordance with the terms of their point-to-radius licenses.

(iii) An LMDS licensee may not initiate operations within the point-to-radius area licensed to an operator (other than an operator in the Local Television Transmission Service) prior to March 11, 1997, even if such operator has not initiated operations to the fullest extent of the license. An LMDS licensee, however, may initiate operations at the border of such operator's license area without prior coordination if the LMDS licensee's operations would not cause harmful interference to the other operator's existing operations.

(iv) An operator (other than an operator in the Local Television Transmission Service) licensed on a point-to-radius basis prior to March 11, 1997, may add additional stations within its license area. Such operator shall coordinate with any affected LMDS licensee if its new operations might cause harmful interference to the existing operations of such LMDS licensee.

(v) Operations licensed prior to March 11, 1997, on a point-to-point basis may not be extended or otherwise modified through the addition of point-to-point links. Such operations shall be limited to the use of frequency pairs licensed as of March 11, 1997. Operations licensed in the Local Television Transmission Service as of March 11, 1997, may continue to operate, but such operators may not expand existing operations nor initiate new operations.

(2) Operations in the 31,075–31,225 MHz band licensed prior to March 11, 1997, shall receive no protection against harmful interference from authorized operations in the Local Multipoint Distribution Service in that band.

(3) Non-LMDS operations in the entire 31,000–31,300 MHz band licensed after March 11, 1997, based on applications refiled no later than June 26, 1998 are unprotected with respect to each other and subject to harmful interference from each other.

(i) Such operations and any operations licensed prior to March 11, 1997, in the band are unprotected with respect to each other and subject to harmful interference from each other.

(ii) Such operations are licensed on a secondary basis to LMDS operations licensed in the band, may not cause interference to LMDS operations, and are

not protected from interference from LMDS operations.

(iii) Such operations licensed on a point-to-point basis may not be extended or otherwise modified through the addition of point-to-point links. Such operations licensed on a point-to-radius basis may add additional stations within the licensed area.

(c) Frequency diversity transmission will not be authorized in these services in the absence of a factual showing that the required communications cannot practically be achieved by other means. Where frequency diversity is deemed to be justified on a protection channel basis, it will be limited to one protection channel for the bands 3,700–4,200, 5925–6425, and 6525–6875 MHz, and a ratio of one protection channel for three working channels for the bands 10,550–10,680 and 10,700–11,700 MHz. In the bands 3,700–4,200, 5,925–6,425, and 6525–6875 MHz, no frequency diversity protection channel will be authorized unless there is a minimum of three working channels, except that where a substantial showing is made that a total of three working channels will be required within three years, a protection channel may be authorized simultaneously with the first working channel. A protection channel authorized under such exception will be subject to termination if applications for the third working channel are not filed within three years of the grant date of the applications for the first working channel. Where equipment employing digital modulation techniques with cross-polarized operation on the same frequency is used, the protection channel authorized under the above conditions may be considered to consist of both polarizations of the protection frequency where such is shown to be necessary.

(d) *Frequency coordination*. For each frequency authorized under this part, the following frequency usage coordination procedures will apply:

(1) *General requirements*. Proposed frequency usage must be prior coordinated with existing licensees, permittees and applicants in the area, and other applicants with previously filed applications, whose facilities could affect or be affected by the new proposal in terms of frequency interference on active channels, applied-for channels, or channels coordinated for future growth. Coordination must be completed prior to filing an application for regular authorization, or a major amendment to a pending application, or any major modification to a license. In coordinating frequency usage with stations in the fixed satellite service, applicants must also comply with the requirements of §101.21(f). In engineering a system or modification thereto, the applicant must, by appropriate studies and analyses, select sites, transmitters, antennas and frequencies that will avoid interference in excess of permissible levels to other users. All applicants and licensees must cooperate fully and make reasonable efforts to resolve technical problems and conflicts that may inhibit the most effective and efficient use of the radio spectrum; however, the party being coordinated with is not obligated to suggest changes or re-engineer a proposal in cases involving conflicts. Applicants should make every reasonable effort to avoid blocking the growth of systems as prior coordinated. The applicant must identify in the application all entities with which the technical proposal was coordinated. In the event that technical problems are not resolved, an explanation must be submitted with the application. Where technical problems are resolved by an agreement or operating arrangement between the parties that would require special procedures be taken to reduce the likelihood of interference in excess of permissible levels (such as the use of artificial site shielding) or would result in a reduction of quality or capacity of either system, the details thereof may be contained in the application.

(2) Coordination procedure guidelines are as follows:

(i) Coordination involves two separate elements: notification and response. Both or either may be oral or in written form. To be acceptable for filing, all applications and major technical amendments must certify that coordination, including response, has been completed. The names of the licensees, permittees and applicants with which coordination was accomplished must be specified. If such notice and/or response is oral, the party

providing such notice or response must supply written documentation of the communication upon request;

(ii) Notification must include relevant technical details of the proposal. At minimum, this should include, as applicable, the following:

Applicant's name and address.

Transmitting station name.

Transmitting station coordinates.

Frequencies and polarizations to be added, changed or deleted.

Transmitting equipment type, its stability, actual output power, emission designator, and type of modulation(s) (loading). Notification shall indicate if modulations lower than the values listed in the table to §101.141(a)(3) of the Commission's rules will be used.

Transmitting antenna type(s), model, gain and, if required, a radiation pattern provided or certified by the manufacturer.

Transmitting antenna center line height(s) above ground level and ground elevation above mean sea level.

Receiving station name.

Receiving station coordinates.

Receiving antenna type(s), model, gain, and, if required, a radiation pattern provided or certified by the manufacturer.

Receiving antenna center line height(s) above ground level and ground elevation above mean sea level.

Path azimuth and distance.

Estimated transmitter transmission line loss expressed in dB.

Estimated receiver transmission line loss expressed in dB.

For a system utilizing ATPC, maximum transmit power, coordinated transmit power, and nominal transmit power.

NOTE: The position location of antenna sites shall be determined to an accuracy of no less than ±1 second in the horizontal dimensions (latitude and longitude) and ±1 meter in the vertical dimension (ground elevation) with respect to the National Spatial Reference System.

(iii) For transmitters employing digital modulation techniques, the notification should clearly identify the type of modulation. Upon request, additional details of the operating characteristics of the equipment must also be furnished;

(iv) Response to notification should be made as quickly as possible, even if no technical problems are anticipated. Any response to notification indicating potential interference must specify the technical details and must be provided to the applicant, in writing, within the 30-day notification period. Every reasonable effort should be made by all applicants, permittees and licensees to eliminate all problems and conflicts. If no response to notification is received within 30 days, the applicant will be deemed to have made reasonable efforts to coordinate and may file its application without a response;

(v) The 30-day notification period is calculated from the date of receipt by the applicant, permittee, or licensee being notified. If notification is by mail, this date may be ascertained by:

(A) The return receipt on certified mail;

(B) The enclosure of a card to be dated and returned by the recipient; or

(C) A conservative estimate of the time required for the mail to reach its destination. In the last case, the estimated date when the 30-day period would expire should be stated in the notification.

(vi) An expedited prior coordination period (less than 30 days) may be requested when deemed necessary by a notifying party. The coordination notice should be identified as ''expedited'' and the requested response date should be clearly indicated. However, circumstances preventing a timely response from the receiving party should be accommodated accordingly. It is the responsibility of the notifying party to receive written concurrence (or verbal, with written to follow) from affected parties or their coordination representatives.

(vii) All technical problems that come to light during coordination must be resolved unless a statement is included with the application to the effect that the applicant is unable or unwilling to resolve the conflict and briefly the reason therefor;

(viii) Where a number of technical changes become necessary for a system during the course of coordination, an attempt should be made to minimize the number of separate notifications for these changes. Where the changes

are incorporated into a completely revised notice, the items that were changed from the previous notice should be identified. When changes are not numerous or complex, the party receiving the changed notification should make an effort to respond in less than 30 days. When the notifying party believes a shorter response time is reasonable and appropriate, it may be helpful for that party to so indicate in the notice and perhaps suggest a response date;

(ix) If, after coordination is successfully completed, it is determined that a subsequent change could have no impact on some parties receiving the original notification, these parties must be notified of the change and of the coordinator's opinion that no response is required;

(x) Applicants, permittees and licensees should supply to all other applicants, permittees and licensees within their areas of operations, the name, address and telephone number of their coordination representatives. Upon request from coordinating applicants, permittees and licensees, data and information concerning existing or proposed facilities and future growth plans in the area of interest should be furnished unless such request is unreasonable or would impose a significant burden in compilation;

(xi) Parties should keep other parties with whom they are coordinating advised of changes in plans for facilities previously coordinated. If applications have not been filed 6 months after coordination was initiated, parties may assume that such frequency use is no longer desired unless a second notification has been received within 10 days of the end of the 6 month period. Renewal notifications are to be sent to all originally notified parties, even if coordination has not been successfully completed with those parties; and

(xii) Any frequency reserved by a licensee for future use in the bands subject to this part must be released for use by another licensee, permittee or applicant upon a showing by the latter that it requires an additional frequency and cannot coordinate one that is not reserved for future use.

(e) Where frequency conflicts arise between co-pending applications in the Private Operational Fixed Point-to-Point Microwave, Common Carrier Fixed Point-to-Point Microwave and Local Television Transmission Services, it is the obligation of the later filing applicant to amend his application to remove the conflict, unless it can make a showing that the conflict cannot be reasonably eliminated. Where a frequency conflict is not resolved and no showing is submitted as to why the conflict cannot be resolved, the Commission may grant the first filed application and dismiss the later filed application(s) after giving the later filing applicant(s) 30 days to respond to the proposed action.

(f)(1) *Coordination and information sharing between MVDDS and NGSO FSS licensees in the 12.2 GHz to 12.7 GHz band.* Prior to the construction or addition of an MVDDS transmitting antenna in this frequency band, the MVDDS licensee shall provide notice of intent to construct the proposed antenna site to NGSO FSS licensees operating in the 12.2–12.7 GHz frequency band and maintain an Internet web site of all existing transmitting sites and transmitting antennas that are scheduled for operation within one year including the ''in service'' dates. In addition to the location of a proposed new transmitting antenna, MVDDS licensees shall provide to the NGSO FSS licensees a technical description of the operating characteristics of the proposed transmission facility. At a minimum, the following information must be included in each notification:

(i) Name of MVDDS licensee;

(ii) Geographic location (including NAD83 coordinates) of proposed MVDDS transmitting antenna;

(iii) Maximum EIRP per 24 MHz;

(iv) Height above average terrain of the transmitting antenna;

(v) Type of antenna to be utilized;

(vi) Main beam azimuth and altitude orientation for the proposed transmitting antenna;

(vii) Theoretically modeled antenna radiation pattern;

(viii) Type(s) of emissions, and;

(ix) Description of the proposed service area.

(2) If the proposed MVDDS antenna site does not meet the minimum spacing requirements on the date of original notification or on subsequent annual anniversary dates of non-operation as set forth in § 101.129, then the MVDDS licensee shall not construct the proposed transmission facility unless all NGSO FSS licensees having active subscribers within the minimum separation distance agree to a shorter spacing. Nothing in this section shall preclude MVDDS and NGSO FSS licensees from agreeing to accept the siting of new MVDDS transmitting antennas that do no meet the minimum distance set forth in § 101.129. Incumbent point-to-point licensees' (those not licensed as MVDDS) facilities are to be operated in the band 12,200–12,700 MHz following the procedures, technical standards, and requirements of § 101.105 in order to protect stations providing Direct Broadcast Satellite Service.

(g) *Licensees operating in Basic Trading Areas authorized in the Local Multipoint Distribution Service.* (1) When the transmitting facilities in a Basic Trading Area (BTA) are to be operated in the bands 27,500–28,350 MHz; 29,100–29,250 MHz; and 31,000–31,300 MHz and the facilities are located within 20 kilometers of the boundaries of a BTA, each licensee must complete the frequency coordination process of paragraph (d)(2) of this section with respect to neighboring BTA licensees that may be affected by its operations prior to initiating service. In addition, all licensed transmitting facilities operating in the bands 31,000–31,075 MHz and 31,225–31,300 MHz and located within 20 kilometers of neighboring facilities must complete the frequency coordination process of paragraph (d)(2) of this section with respect to such authorized operations before initiating service.

(2) Response to notification should be made as quickly as possible, even if no technical problems are anticipated. Any response to notification indicating potential interference must specify the technical details and must be provided to the applicant, either electronically or in writing, within the 30-day notification period. Every reasonable effort should be made by all licensees to eliminate all problems and conflicts. If no response to notification is received within 30 days, the licensee will be deemed to have made reasonable efforts to coordinate and commence operation without a response. The beginning of the 30-day period is determined pursuant to paragraph (d)(2)(v) of this section.

(h) *Special requirements for operations in the band 29,100–29,250 MHz.* (1)(i) Local Multipoint Distribution Service (LMDS) receive stations operating on frequencies in the 29,100–29,250 MHz band within a radius of 75 nautical miles of the geographic coordinates provided by a non-GSO-MSS licensee pursuant to § 101.113(c)(2) or (c)(3)(i) (the ''feeder link earth station complex protection zone'') shall accept any interference caused to them by such earth station complexes and shall not claim protection from such earth station complexes.

(ii) LMDS licensees operating on frequencies in the 29,100–29,250 MHz band outside a feeder link earth station complex protection zone shall cooperate fully and make reasonable efforts to resolve technical problems with the non-GSO MSS licensee to the extent that transmissions from the non-GSO MSS operator's feeder link earth station complex interfere with an LMDS receive station.

(2) No more than 15 days after the release of a public notice announcing the commencement of LMDS auctions, feeder link earth station complexes to be licensed pursuant to § 25.257 of this chapter shall be specified by a set of geographic coordinates in accordance with the following requirements: no feeder link earth station complex may be located in the top eight (8) metropolitan statistical areas (MSAs), ranked by population, as defined by the Office of Management and Budget as of June 1993, using estimated populations as of December 1992; two (2) complexes may be located in MSAs 9 through 25, one of which must be Phoenix, AZ (for a complex at Chandler, AZ); two (2) complexes may be located in MSAs 26 to 50; three (3) complexes may be located in MSAs 51 to 100, one of which must be Honolulu, Hawaii (for a complex at Waimea); and the three (3) remaining complexes must be located at least 75 nautical miles from the borders

of the 100 largest MSAs or in any MSA not included in the 100 largest MSAs. Any location allotted for one range of MSAs may be taken from an MSA below that range.

(3)(i) Any non-GSO MSS licensee may at any time specify sets of geographic coordinates for feeder link earth station complexes with each earth station contained therein to be located at least 75 nautical miles from the border of the 100 largest MSAs.

(ii) For purposes of paragraph (h)(3)(i) of this section, non-GSO MSS feeder link earth station complexes shall be entitled to accommodation only if the affected non-GSO MSS licensee preapplies to the Commission for a feeder link earth station complex or certifies to the Commission within sixty days of receiving a copy of an LMDS application that it intends to file an application for a feeder link earth station complex within six months of the date of receipt of the LMDS application.

(iii) If said non-GSO MSS licensee application is filed later than six months after certification of the Commission, the LMDS and non-GSO MSS entities shall still cooperate fully and make reasonable efforts to resolve technical problems, but the LMDS licensee shall not be obligated to re-engineer its proposal or make changes to its system.

(4) LMDS licensees or applicants proposing to operate hub stations on frequencies in the 29,100–29,250 MHz band at locations outside of the 100 largest MSAs or within a distance of 150 nautical miles from a set of geographic coordinates specified under paragraphs (h)(2) or (h)(3)(i) of this section shall serve copies of their applications on all non-GSO MSS applicants, permittees or licensees meeting the criteria specified in § 25.257(a). Non-GSO MSS licensees or applicants shall serve copies of their feeder link earth station applications, after the LMDS auction, on any LMDS applicant or licensee within a distance of 150 nautical miles from the geographic coordinates that it specified under § 101.113(c)(2) or (c)(3)(i). Any necessary coordination shall commence upon notification by the party receiving an application to the party who filed the application. The results of any such coordination shall be reported to the Commission within sixty days. The non-GSO MSS earth station licensee shall also provide all such LMDS licensees with a copy of its channel plan.

(i)(1) When the licensed facilities are to be operated in the band 38,600 MHz to 40,000 MHz and the facilities are located within 16 kilometers of the boundaries of an Economic Area, each licensee must complete the frequency coordination process of subsection 101.103(d) with respect to neighboring EA licensees and existing licensees within its EA service area that may be affected by its operation prior to initiating service. In addition to the technical parameters listed in subsection 101.103(d), the coordinating licensee must also provide potentially affected parties technical information related to its subchannelization plan and system geometry.

(2) Response to notification should be made as quickly as possible, even if no technical problems are anticipated. Any response to notification indicating potential interference must specify the technical details and must be provided to the licensee, either electronically or in writing, within 10 days of notification. Every reasonable effort should be made by all licensees to eliminate all problems and conflicts. If no response to notification is received within 10 days, the licensee will be deemed to have made reasonable efforts to coordinate and may commence operation without a response. The beginning of the 10-day period is determined pursuant to § 101.103(d)(v).

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§ 101.105 Interference protection criteria.

(a) The interference protection criteria for fixed stations subject to this part are as follows:

(1) To long-haul analog systems, employing frequency modulated radio and frequency division multiplexing to provide multiple voice channels, the allowable interference level per exposure:

(i) Due to co-channel sideband-to-sideband interference must not exceed 5 pwpO (Picowatts of absolute noise power psophometrically weighted (pwpO), appearing in an equivalent voice band channel of 300–3400 Hz); or

(ii) Due to co-channel carrier-beat interference must not exceed 50 pwpO.

(2) To short-haul analog systems employing frequency modulated radio and frequency division multiplexing to provide multiple voice channels, the allowable interference level per exposure:

(i) Due to co-channel sideband-to-sideband interference must not exceed 25 pwpO except in the 952–960 MHz band interference into single link fixed relay and control stations must not exceed 250 pwpO per exposure; or

(ii) Due to co-channel carrier-beat interference must not exceed 50 pwpO except in the 952–960 MHz band interference into single link fixed relay and control stations must not exceed 1000 pwpO per exposure.

(3) FM-TV. In analog systems employing frequency modulated radio that is modulated by a standard, television (visual) signal, the allowable interference level per exposure may not exceed the levels which would apply to long-haul or short-haul FM-FDM systems, as outlined in paragraphs (b) (1) and (2) of this section, having a 600–1200 voice channel capacity.

(4) 12.2–12.7 GHz band. (i) To accommodate co-primary NGSO FSS earth stations in the 12.2–12.7 GHz band, the PFD of an MVDDS transmitting system must not exceed −135 dBW/m² in any 4 kHz band at a reference point at the surface of the earth at a distance greater than 3 kilometers from the MVDDS transmitting antenna.

(ii) To accommodate co-primary Direct Broadcast Satellite Service earth stations, an MVDDS transmitting system must not exceed the EPFD levels specified in paragraph (a)(4)(ii)(B) of this section at any DBS subscriber location in accordance with the procedures listed in § 101.1440 of this part.

(A) Definition of equivalent power flux density: The equivalent power flux density (EPFD) is the power flux density produced at a direct broadcast service (DBS) receive earth station, taking into account shielding effects and the off-axis discrimination of the receiving antenna assumed to be pointing at the appropriate DBS satellite(s) from the transmitting antenna of a multichannel video distribution and data service (MVDDS) transmit station. The EPFD in dBW/m² in the reference bandwidth is calculated using the following formula:

$$\mathrm{EPFD} = 10 * \log_{10}\left[\frac{P_{out} * G_m(\theta_m, \phi_m) * G_e(\theta_e, \phi_e) * I}{G_{e,max} * 4 * \pi * d^2}\right]$$

Where:

P_{out} = Total output power of the MVDDS transmitter (watts) into antenna

Gm (θ_m,φ_m = Gain of the MVDDS antenna in the direction of the DBS earth station

G_e (θ_e,φ_e = Gain of the earth station in the direction of the MVDDS antenna

I = Interference scaling factor for the earth station (1 dB for MVDDS transmitters employing the modulation discussed in Section 3.1.5 of the MITRE Report (*i.e.*, a QPSK modulated signal passed through a square-root raised cosine filter). For other modulation and filtering schemes, the interference scaling factor can be measured using the procedures described in Appendix A of the MITRE Report available at *http://www.fcc.gov/oet/info/mitrereport/mitrereport_4_01.pdf*).

$G_{e,\ max}$ = Maximum gain of the DBS earth station

d = the distance between the MVDDS transmitting antenna and the DBS earth station (meters)

(B) Regional equivalent power flux density levels:

(*1*) −168.4 dBW/m²/4kHz in the Eastern region consisting of the District of Columbia and the following states: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Kentucky, Tennessee, North

Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, and Florida;

(*2*) −169.8 dBW/m²/4kHz in the Midwestern region consisting of the following states: Ohio, Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, Arkansas, South Dakota, Nebraska, Kansas, Oklahoma, and Texas;

(*3*) −171.0 dBW/m²/4kHz in the Southwestern region consisting of the following states: Wyoming, Colorado, New Mexico, Utah, Arizona, Nevada, and California (south of 37° North Latitude);

(*4*) −172.1 dBW/m²/4kHz in the Northwestern region consisting of the following states: Washington, Oregon, California (north of 37° North Latitude), Idaho, Montana, North Dakota, Alaska, and Hawaii.

(iii) Except for public safety entities, harmful interference protection from MVDDS stations to incumbent point-to-point 12 GHz fixed stations is not required. Incumbent point-to-point private operational fixed 12 GHz stations, except for public safety entities, are required to protect MVDDS stations under the process described in §101.103(d) of this part.

(5) *71,000–76,000 MHz; 81,000–86,000 MHz*. In these bands the following interference criteria shall apply:

(i) For receivers employing digital modulation: based upon manufacturer data and following TSB 10–F or other generally acceptable good engineering practice, for each potential case of interference a threshold-to-interference ratio (T/I) shall be determined that would cause 1.0 dB of degradation to the static threshold of the protected receiver. For the range of carrier power levels (C) between the clear-air (unfaded) value and the fully-faded static threshold value, in no case shall interference cause C/I to be less than the T/I so determined unless it can be shown that the availability of the affected receiver would still be acceptable despite the interference.

(ii) For receivers employing analog modulation: manufacturer data or industry criteria will specify a baseband signal-to-noise requirement (S/N) of the receiver that will result in acceptable signal quality for continuous operation. Following TSB 10–F or other generally acceptable good engineering practice, for each potential case of interference a C/I objective shall be calculated to ensure that this S/N will not be degraded by more than 1.0 dB. For the range of carrier power levels (C) between the clear-air (unfaded) value and the fully-faded threshold value, in no case shall interference cause the C/I to be less than the objective so determined unless it can be shown that the signal quality and availability of the affected receiver would still be acceptable despite the interference.

(6) *92,000–94,000 MHz; 94,100–95,000 MHz*. In these bands prior links shall be protected to a threshold-to-interference ratio (T/I) level of 1.0 dB of degradation to the static threshold of the protected receiver. Any new link shall not decrease a previous link's desired-to-undesired (D/U) signal ratio below a minimum of 36 dB, unless the earlier link's licensee agrees to accept a lower D/U.

(7) All stations operating under this part must protect the radio quiet zones as required by §1.924 of this chapter. Stations authorized by competitive bidding are cautioned that they must receive the appropriate approvals directly from the relevant quiet zone entity prior to operating.

(b) In addition to the requirements of paragraph (a) of this section the adjacent channel interference protection criteria to be afforded, regardless of system length, or type of modulation, multiplexing, or frequency band, must be such that the interfering signal does not produce more than 1.0 dB degradation of the practical threshold of the protected receiver. The ''practical threshold'' of the protected receiver can be based upon the definition in TSB 10, referenced in paragraph (c) of this section, or upon alternative generally acceptable good engineering standards.

(c) *Applying the criteria*. (1) Guidelines for applying the interference protection criteria for fixed stations subject to this part are specified in the Telecommunications Industry Association's Telecommunications Systems Bulletin TSB 10, ''Interference Criteria for Microwave Systems'' (TSB 10). Other procedures that follow generally

acceptable good engineering practices are also acceptable to the Commission.

(2) If TSB 10 guidelines cannot be used, the following interference protection criteria may be used by calculating the ratio in dB between the desired (carrier signal) and the undesired (interfering) signal (C/I ratio) appearing at the input to the receiver under investigation (victim receiver). Except as provided in § 101.147 where the applicant's proposed facilities are of a type not included in paragraphs (a) and (b) of this section or where the development of the carrier-to-interference (C/I) ratio is not covered by generally acceptable procedures, or where the applicant does not wish to develop the carrier-to-interference ratio, the applicant must, in the absence of criteria or a developed C/I ratio, employ the following C/I protection ratios:

(i) *Co-Channel Interference*. Both side band and carrier-beat, applicable to all bands; the existing or previously authorized system must be afforded a carrier to interfering signal protection ratio of at least 90 dB, except in the 952–960 MHz band where it must be 75dB, and in the 71,000–76,000 MHz and 81,000–86,000 MHz bands where the criteria in paragraph (a)(5) of this section applies, and in the 92,000–94,000 MHz and 94,100–95,000 MHz bands, where the criteria in paragraph (a)(6) of this section applies; or

(ii) *Adjacent Channel Interference*. Applicable to all bands; the existing or previously authorized system must be afforded a carrier to interfering signal protection ratio of at least 56 dB, except in the 71,000–76,000 MHz and 81,000–86,000 MHz bands where the criteria in paragraph (a)(5) of this section applies, and in the 92,000–94,000 MHz and 94,100–95,000 MHz bands, where the criteria in paragraph (a)(6) of this section applies.

(3) Applicants for frequencies listed in § 101.147(b)(1) through (4) must make the following showings that protection criteria have been met over the entire service area of existing systems. Such showings may be made by the applicant or may be satisfied by a statement from a frequency coordinator.

(i) For site-based multiple address stations in the 928–929/952–960 MHz and the 932–932.5/941–941.5 MHz bands, a statement that the proposed system complies with the following co-channel separations from all existing stations and pending applications:

Fixed-to-fixed—145 km;
Fixed-to-mobile—113 km;
Mobile-to-mobile—81 km

NOTE TO PARAGRAPH (c)(3)(i): Multiple address systems employing only remote stations will be treated as mobile for the purposes of determining the appropriate separation. For mobile operation, the mileage is measured from the reference point specified on the license application. For fixed operation on subfrequencies in accordance with § 101.147 the mileage also is measured from the reference point specified on the license application.

(ii) In cases where the geographic separation standard in paragraph (c)(3)(i) of this section is not followed, an engineering analysis must be submitted to show the coordination of the proposed assignment with existing systems located closer than those standards. The engineering analyses will include:

(A) Specification of the interference criteria and system parameters used in the interference study;

(B) Nominal service areas of each system included in the interference analysis;

(C) Modified service areas resulting from the proposed system. The propagation models used to establish the service boundary limits must be specified and any special terrain features considered in computing the interference impact should be described; and

(D) A statement that all parties affected have agreed to the engineering analysis and will accept the calculated levels of interference.

(iii) MAS EA licensees shall provide protection in accordance with § 101.1333.

(4) Multiple address systems operating on subfrequencies in accordance with § 101.147 that propose to operate master stations at unspecified locations must define the operating area by a radius about a geographical coordinate and describe how interference to co-channel users will be controlled.

(5) Multiple address frequencies in the 956.25–956.45 MHz bands may be assigned for use by mobile master stations on a primary basis. Multiple address frequencies in the 941.0–941.5 MHz bands that are licensed on a site-by-site basis and the 952 MHz bands may

be assigned for use by primary mobile master stations on a case-by-case basis if the 956.25–956.45 MHz frequencies are unavailable. Multiple address mobile (master and remote) operation is permitted on frequencies licensed by geographic area subject to the interference protection criteria set forth in § 101.1333, *i.e.*, adjacent channel site-based licensees and co-channel operations in adjacent EAs. Mobile operation in the 959.85–960 MHz band is not permitted.

(6) Each application for new or modified nodal station on channels numbered 4A, 4B, 7, 9, and 19/20 in the 10.6 GHz band must demonstrate that all existing co-channel stations are at least 56 kilometers from the proposed nodal station site. Applicants for these channels must certify that all licensees and applicants for stations on the adjacent channels within 56 kilometers of the proposed nodal station have been notified of the proposed station and do not object. Alternatively, or if one of the affected adjacent channel interests does object, the applicant may show that all affected adjacent channel parties are provided a C/I protection ratio of 0 dB. An applicant proposing to operate at an AAT greater than 91 meters must reduce its EIRP in accordance with the following table; however, in no case may EIRP exceed 70 dBm on the 10.6 GHz channels:

AAT (meters)	EIRP dBm
Above 300	+38
251 to 300	41
201 to 250	43
151 to 200	49
101 to 150	55
100 and below	85

(7) Each application for new or modified nodal station on channels numbered 21, 22, 23, and 24 in the 10.6 GHz band must include an analysis of the potential for harmful interference to all other licensed and previously applied for co-channel and adjacent channel stations located within 80 kilometers of the location of the proposed station. The criteria contained in § 101.103(d)(2) must be used in this analysis. Applicants must certify that copies of this analysis have been served on all parties which might reasonably be expected to receive interference above the levels set out in § 101.103(d)(2) within 5 days of the date the subject application is filed with the Commission.

(8) If the potential interference will exceed the prescribed limits, a statement shall be submitted with the application for new or modified stations to the effect that all parties have agreed to accept the higher level of interference.

(d) Effective August 1, 1985, when a fixed station that conforms to the technical standards of this subpart (or, in the case of the 12,200–12,700 MHz band, for an incumbent non-MVDDS station or a direct broadcast satellite station) receives or will receive interference in excess of the levels specified in this section as a result of an existing licensee's use of non-conforming equipment authorized between July 20, 1961 and July 1, 1976, and the interference would not result if the interfering station's equipment complied with the current technical standards, the licensee of the non-conforming station must take whatever steps are necessary to correct the situation up to the point of installing equipment which fully conforms to the technical standards of this subpart. In such cases, if the engineering analysis demonstrates that:

(1) The conforming station would receive interference from a non-conforming station in excess of the levels specified in this section; and

(2) The interference would be eliminated if the non-conforming equipment were replaced with equipment which complies with the standards of this subpart, the licensee (or prospective licensee) of the station which would receive interference must provide written notice of the potential interference to both the non-conforming licensee and the Commission's office in Gettysburg, PA. The non-conforming licensee must make all required equipment changes within 180 days from the date of official Commission notice informing the licensee that it must upgrade its equipment, unless an alternative solution has been agreed to by all parties involved in the interference situation. If a non-conforming licensee fails to make all required changes within the

specified period of time, the Commission may require the licensee to suspend operation until the changes are completed.

(e) *Interference dispute resolution procedures.* Should a licensee licensed under this part receive harmful interference from another licensee licensed under this chapter, the parties involved shall comply with the dispute resolution procedures set forth herein:

(1) The licensee experiencing the harmful interference shall notify the licensee believed to be causing the harmful interference and shall supply information describing its problem and supporting its claim;

(2) Upon receipt of the harmful interference notice, the licensee alleged to be causing the harmful interference shall respond immediately and make every reasonable effort to identify and resolve the conflict; and

(3) Licensees are encouraged to resolve the harmful interference prior to contacting the Commission.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68983, Dec. 14, 1998; 65 FR 17449, Apr. 3, 2000; 65 FR 38329, June 20, 2000; 65 FR 59358, Oct. 5, 2000; 66 FR 35110, July 3, 2001; 67 FR 43038, June 28, 2002; 69 FR 31746, June 7, 2004; 70 FR 29996, May 25, 2005]

§ 101.107 Frequency tolerance.

(a) The carrier frequency of each transmitter authorized in these services must be maintained within the following percentage of the reference frequency except as otherwise provided in paragraph (b) of this section or in the applicable subpart of this part (unless otherwise specified in the instrument of station authorization the reference frequency will be deemed to be the assigned frequency):

Frequency (MHz)	Frequency tolerance (percent)
928 to 929[5]	0.0005
932 to 932.5	0.00015
932.5 to 935	0.00025
941 to 941.5	0.00015
941.5 to 944	0.00025
952 to 960[5]	0.0005
1,850 to 1,990	0.002
2,110 to 2,200	0.001
2,450 to 2,500[1]	0.001
3,700 to 4,200[1]	0.005
5,925 to 6,875[1]	0.005
6,875 to 7,125[1]	0.005
10,550 to 11,700[1 2]	0.005
11,700 to 12,200[1]	0.005
12,200 to 13,250[4]	0.005
14,200 to 14,400	0.03
17,700 to 18,820[3]	0.003
18,820 to 18,920[3]	0.001
928 to 929[5]	0.0005
18,920 to 19,700[3]	0.003
19,700 to 27,500[4 7]	0.001
27,500 to 28,350	0.001
29,100 to 29,250	0.001
31,000 to 31,300[6]	0.001
31,300 to 40,000[4]	0.03
71,000 to 76,000[8].	
81,000 to 86,000[8].	
92,000 to 95,000[8].	

* * * * *

[1] Applicable only to common carrier LTTS stations. Tolerance for 2450–2500 MHz is 0.005%. Beginning Aug. 9, 1975, this tolerance will govern the marketing of LTTS equipment and the issuance of all such authorizations for new radio equipment. Until that date new equipment may be authorized with a frequency tolerance of .03% in the frequency range 2,200 to 10,500 MHz and .05% in the range 10,500 MHz to 12,200 MHz, and equipment so authorized may continue to be used for its life provided that it does not cause interference to the operation of any other licensee. Beginning March 1, 2005, new LTTS operators will not be licensed and existing LTTS licensees will not be renewed in the 11.7–12.2 GHz band.

[2] *See* subpart G of this part for the stability requirements for transmitters used in the Digital Electronic Message Service.

[3] Existing type accepted equipment with a frequency tolerance of ±0.03% may be marketed until December 1, 1988. Equipment installed and operated prior to December 1, 1988 may continue to operate after that date with a minimum frequency tolerance of ±0.03%. However, the replacement of equipment requires that the current tolerance be met.

[4] Applicable to private operational fixed point-to-point microwave and stations providing MVDDS.

[5] For private operational fixed point-to-point microwave systems, with a channel greater than or equal to 50 KHz bandwidth, ±0.0005%; for multiple address master stations, regardless of bandwidth, ±0.00015%; for multiple address remote stations with 12.5 KHz bandwidths, ±0.00015%; for multiple address remote stations with channels greater than 12.5 KHz bandwidth, ±0.0005%.

[6] For stations authorized prior to March 11, 1997, transmitter tolerance shall not exceed 0.03%.

[7] The frequency tolerance for stations authorized on or before April 1, 2005 is 0.03%. Existing licensees and pending applicants on that date may continue to operate after that date with a frequency tolerance of 0.03%, provided that it does not cause harmful interference to the operation of any other licensee. For analog systems, if the channel bandwidth is greater than 30 MHz up to 50 MHz, the frequency tolerance standard will be 0.03%; if the channel bandwidth is 30 MHz or less, then the frequency tolerance standard will be 0.003%. This analog standard is conditional provided that harmful interference is not caused to digital stations operating within the 0.001% tolerance standards. If harmful interference is caused to stations operating with the more stringent standard, the onus shall be on the operators with the less stringent parameters to develop an engineering solution to the problem. For exceptions, *see* § 101.147 and § 101.507.

[8] Equipment authorized to be operated in the 71,000–76,000 MHz, 81,000–86,000 MHz, 92,000–94,000 MHz and 94,100–95,000 MHz bands is exempt from the frequency tolerance requirement noted in the table of paragraph (a) of this section.

(b) Heterodyne microwave radio systems may be authorized at a somewhat less restrictive frequency tolerance (up to .01 percent) to compensate for frequency shift caused by numerous repeaters between base band signal insertion. Where such relaxation is sought, applicant must provide all calculations

and indicate the desired tolerance over each path. In such instances the radio transmitters and receivers used must individually be capable of complying with the tolerance specified in paragraph (a) of this section. Heterodyne operation is restricted to channel bandwidth of 10 MHz or greater.

(c) As an additional requirement in any band where the Commission makes assignments according to a specified channel plan, provisions must be made to prevent the emission included within the occupied bandwidth from radiating outside the assigned channel at a level greater than that specified in § 101.111.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23167, Apr. 29, 1997; 63 FR 6105, Feb. 6, 1998; 63 FR 9448, Feb. 25, 1998; 63 FR 14039, Mar. 24, 1998; 63 FR 36611, July 7, 1998; 66 FR 35110, July 3, 2001; 67 FR 43038, June 26, 2002; 68 FR 4956, Jan. 31, 2003; 69 FR 3266, Jan. 23, 2004; 69 FR 16832, Mar. 31, 2004; 70 FR 4787, Jan. 31, 2005; 76 FR 59572, Sept. 27, 2011]

§ 101.109 Bandwidth.

(a) Each authorization issued pursuant to these rules will show, as the emission designator, a symbol representing the class of emission which must be prefixed by a number specifying the necessary bandwidth. This figure does not necessarily indicate the bandwidth actually occupied by the emission at any instant. In those cases where part 2 of this chapter does not provide a formula for the computation of the necessary bandwidth, the occupied bandwidth may be used in the emission designator.

(b) Stations in this service will be authorized any type of emission, method of modulation, and transmission characteristic, consistent with efficient use of the spectrum and good engineering practice, except that Type B, damped-wave emission will not be authorized.

(c) The maximum bandwidth which will be authorized per frequency assigned is set out in the table that follows. Regardless of the maximum authorized bandwidth specified for each frequency band, the Commission reserves the right to issue a license for less than the maximum bandwidth if it appears that a lesser bandwidth would be sufficient to support an applicant's intended communications.

Frequency band (MHz)	Maximum authorized bandwidth
928 to 929	25 kHz [1 5 6]
932 to 932.5, 941 to 941.5	12.5 kHz [1 5 6]
932.5 to 935, 941.5 to 944	200 kHz [1]
952 to 960	200 KHz [1 5 6]
1,850 to 1,990	10 MHz [1]
2,110 to 2,130	3.5 MHz
2,130 to 2,150	800 or 1600 KHz [1]
2,150 to 2,160	10 MHz
2,160 to 2,180	3.5 MHz
2,180 to 2,200	800 or 1600 KHz [1]
2,450 to 2,483.5	625 KHz [2]
2,483.5 to 2,500	800 KHz
3,700 to 4,200	20 MHz
5,925 to 6,425	[1] 60
6,425 to 6,525	25 MHz
6,525 to 6,875	30 MHz.[1]
6,875 to 7,125	25 MHz [1]
10,550 to 10,680	5 MHz [1]
10,700 to 11,700	[1] 80
12,200 to 12,700 [8]	500 megahertz
12,700 to 13,150	50 MHz
13,200 to 13,250	25 MHz
17,700 to 18,140	220 MHz [1]
18,140 to 18,142	2 MHz
18,142 to 18,580	6 MHz
18,580 to 18,820	20 MHz [1]
18,820 to 18,920	10 MHz
18,920 to 19,160	20 MHz [1]
19,160 to 19,260	10 MHz
19,260 to 19,700	220 MHz [1]
21,200 to 23,600	50 MHz [1 4]
24,250 to 25,250	40 MHz [7]
27,500 to 28,350	850 MHz
29,100 to 29,250	150 MHz
31,000 to 31,075	75 MHz
31,075 to 31,225	150 MHz
31,225 to 31,300	75 MHz
38,600 to 40,000	50 MHz [7]
71,000 to 76,000	5000 MHz
81,000 to 86,000	5000 MHz
92,000 to 95,000	([3])

[1] The maximum bandwidth that will be authorized for each particular frequency in this band is detailed in the appropriate frequency table in § 101.147. If contiguous channels are aggregated in the 928–928.85/952–952.85/956.25–956.45 MHz, the 928.85–929/959.85–960 MHz, or the 932–932.5/941–941.5 MHz bands, then the bandwidth may exceed that which is listed in the table.

[2] 1250 KHz, 1875 KHz, or 2500 KHz on a case-by-case basis.

[3] To be specified in authorization. For the band 92 to 95 GHz, maximum bandwidth is licensed in one segment of 2 GHz from 92–94 GHz and one 0.9 GHz segment from 94.1 to 95 GHz, or the total of the loaded band if smaller than the assigned bandwidth.

[4] For exceptions, see § 101.147(s).

[5] A 12.5 kHz bandwidth applies only to frequencies listed in § 101.147(b)(1) through (4).

[6] For frequencies listed in § 101.147(b)(1) through (4), consideration will be given on a case-by-case basis to authorizing bandwidths up to 50 kHz.

[7] For channel block assignments in the 24,250–25,250 MHz and 38,600–40,000 MHz bands, the authorized bandwidth is equivalent to an unpaired channel block assignment or to either half of a symmetrical paired channel block assignment. When adjacent channels are aggregated, equipment is permitted to operate over the full channel block aggregation without restriction.

NOTE TO FOOTNOTE 7: Unwanted emissions shall be suppressed at the aggregate channel block edges based on the same roll-off rate as is specified for a single channel block in § 101.111(a)(1) or in § 101.111(a)(2)(ii) and (iii) as appropriate.

[8] For incumbent private operational fixed point-to-point stations in this band (those not licensed as MVDDS), the maximum bandwidth shall be 20 MHz.

[61 FR 26677, May 28, 1996, as amended at 61 FR 44181, Aug. 28, 1996; 62 FR 23167, Apr. 29, 1997; 62 FR 24582, May 6, 1997; 63 FR 6105, Feb. 6, 1998; 65 FR 17449, Apr. 3, 2000; 65 FR 38329, June 20, 2000; 65 FR 59358, Oct. 5, 2000; 67 FR 43038, June 26, 2002; 68 FR 4956, Jan. 31, 2003; 69 FR 3266, Jan. 23, 2004; 70 FR 29997, May 25, 2005; 75 FR 41771, July 19, 2010; 76 FR 59572, Sept. 27, 2011; 77 FR 54432, Sept. 5, 2012]

§ 101.111 Emission limitations.

(a) The mean power of emissions must be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) When using transmissions other than those employing digital modulation techniques:

(i) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 decibels;

(ii) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 decibels;

(iii) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43+10 Log_{10} (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(2) When using transmissions employing digital modulation techniques (see § 101.141(b)) in situations not covered in this section:

(i) For operating frequencies below 15 GHz, in any 4 KHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels:

$A = 35 + 0.8(P - 50) + 10 \text{ Log}10 B$. (Attenuation greater than 80 decibels or to an absolute power of less than −13 dBm/1MHz is not required.) where:

A = Attenuation (in decibels) below the mean output power level.
P = Percent removed from the center frequency of the transmitter bandwidth.
B = Authorized bandwidth in MHz.

NOTE: MVDDS operations in the 12.2–12.7 GHz band shall use 24 megahertz for the value of B in the emission mask equation set forth in this section. The emission mask limitation shall only apply at the 12.2–12.7 GHz band edges and does not restrict MVDDS channelization bandwidth within the band.

(ii) For operating frequencies above 15 GHz, in any 1 MHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels:

$A = 11 + 0.4(P - 50) + 10 \text{ Log}_{10} B$. (Attenuation greater than 56 decibels or to an absolute power of less than −13 dBm/1MHz is not required.)

(iii) In any 1 MHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 Log_{10} (the mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation. The authorized bandwidth includes the nominal radio frequency bandwidth of an individual transmitter/modulator in block-assigned bands. Equipment licensed prior to April 1, 2005 shall only be required to meet this standard in any 4 kHz band.

(iv) The emission mask for LMDS and the 24 GHz Service shall use the equation in paragraph (a)(2)(ii) of this section and apply it only to the band edge of each block of spectrum, but not to subchannels established by licensees. The value of P in the equation is the percentage removed from the carrier frequency and assumes that the carrier frequency is the center of the actual bandwidth used. The emission mask can be satisfied by locating a carrier of the subchannel sufficiently far from the channel edges so that the emission levels of the mask are satisfied. The LMDS or 24 GHz emission mask shall use a value B (bandwidth) of 40 MHz, for all cases even in the case where a narrower subchannel is used (for instance the actual bandwidth is 10 MHz) and the mean output power used in the calculation is the sum of the output power of a fully populated channel. For block assigned channels, the out-of-band emission limits apply only outside the assigned band of operation and not within the band.

(v) The emission mask for the 71–76 GHz, 81–86 GHz, 92–94 GHz, and 94.1–95 GHz bands used in the equation in paragraph (a)(2)(ii) of this section applies only to the edge of each channel, but not to sub-channels established by licensees. The value of P in the equation is for the percentage removed from the carrier frequency and assumes that the carrier frequency is the center of the actual bandwidth used. The value of B will always be 500 MHz. In the case where a narrower sub-channel is used within the assigned bandwidth, such sub-carrier will be located sufficiently far from the channel edges to satisfy the emission levels of the mask. The mean output power used in the calculation is the sum of the output power of a fully populated channel.

(3) For Digital Termination System channels used in the Digital Electronic Message Service (DEMS) operating in the 10,550–10,680 MHz band:

(i) In any 4 KHz band, the center frequency of which is removed from the edge of the DEMS channel by up to and including 1.125 times the DEMS subchannel bandwidth: As specified by the following equation may in no event be less than 50+10 $\log_{10}$ N decibels:

$$A = 50 + 0.0333(F - 0.5B) + 10 \log_{10} N \text{ decibels}$$

Where:

A = Attenuation (in decibels) below means output power level contained within the DEMS channel for a given polarization.

B = Bandwidth of DEMS channel (in KHz).

F = Absolute value of the difference between the center frequency of the 4 KHz band measured and the center frequency of the DEMS channel (in KHz).

N = Number of active subchannels of the given polarization within the DEMS channel.

(ii) In any 4 KHz band within the authorized DEMS band the center frequency of which is removed from the center frequency of the DEMS channel by more than the sum of 50% of the DEMS channel bandwidth plus 1.125 times the subchannel bandwidth: As specified by the following equation but in no event less than 80 decibels:

$$A = 80 + 10 \log_{10} N \text{ decibels}$$

(iii) In any 4 KHz band the center frequency of which is outside the authorized DEMS band: At least 43+10 $\log_{10}$ (mean output power in watts) decibels.

(4) For DEMS channels in the 17,700–19,700 MHz band:

(i) In any 4 KHz band, the center frequency of which is removed from the frequency of the center of the DEMS channel by more than 50 percent of the DEMS channel bandwidth up to and including 50 percent plus 500 KHz: As specified by the following equation but in no event be less than 50+10 $\log_{10}$ N decibels:

$$A = 50 + 0.06(F - 0.5B) + 10 \log_{10} N \text{ decibels}$$

Where:

A = Attenuation (in decibels) below means output power level contained within the DEMS channel for a given polarization.

B = Bandwidth of DEMS channel (in KHz).

F = Absolute value of the difference between the center frequency of the 4 KHz band measured and the center frequency of the DEMS channel (in KHz).

N = Number of active subchannels of the given polarization within the DEMS channel.

(ii) In any 4 KHz band within the authorized DEMS band, the center frequency of which is removed from the center frequency of the DEMS channel by more than the sum of 50 percent of the channel bandwidth plus 500 KHz: As specified by the following equation but in no event less than 80 decibels:

$$A=80+10 \log_{10} N \text{ decibels}$$

(iii) In any 4 KHz band the center frequency of which is outside the authorized Digital Message Service band: At least 43+10 $\log_{10}$ (mean output power in watts) decibels.

(5) When using transmissions employing digital modulation techniques on the 900 MHz multiple address frequencies with a 12.5 KHz bandwidth, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) in accordance with the following schedule:

(i) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in KHz) of more than 2.5 KHz up to and including 6.25 KHz: At least 53 $\log_{10}$ (fd/2.5) decibels;

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in

KHz) of more than 6.25 KHz up to and including 9.5 KHz: At least 103 $\log_{10}$ (fd/3.9) decibels;

(iii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in KHz) of more than 9.5 KHz up to and including 15 KHz: At least 157 $\log_{10}$ (fd/5.3) decibels; and

(iv) On any frequency removed from the center of the authorized bandwidth by a displacement frequency greater than 15 KHz: At least 50 plus 10 $\log_{10}$(P) or 70 decibels, whichever is the lesser attenuation.

(6) When using transmissions employing digital modulation techniques on the 900 MHz multiple address frequencies with a bandwidth greater than 12.5 KHz, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) in accordance with the following schedule:

(i) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in KHz) of more than 5 KHz up to and including 10 KHz: At least 83 $\log_{10}$ (fd/5) decibels;

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in KHz) of more than 10 KHz up to and including 250 percent of the authorized bandwidth: At least 116 $\log_{10}$ (fd/6.1) decibels or 50 plus 10 $\log_{10}$ (P) or 70 decibels, whichever is the lesser attenuation; and

(iii) On any frequency removed from the center of the authorized bandwidth by more that 250 percent of the authorized bandwidth: At least 43 plus 10 $\log_{10}$ (output power in watts) decibels or 80 decibels, whichever is the lesser attenuation.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraph (a) of this section.

(c) The emission of an unmodulated carrier is prohibited except for test purposes as required for proper station and system maintenance.

[61 FR 26677, May 28, 1996, as amended at 62 FR 24582, May 6, 1997; 65 FR 59358, Oct. 5, 2000; 67 FR 43038, June 26, 2002; 68 FR 4957, Jan. 31, 2003; 69 FR 3266, Jan. 23, 2004; 69 FR 31746, June 7, 2004]

§ 101.113 Transmitter power limitations.

(a) On any authorized frequency, the average power delivered to an antenna in this service must be the minimum amount of power necessary to carry out the communications desired. Application of this principle includes, but is not to be limited to, requiring a licensee who replaces one or more of its antennas with larger antennas to reduce its antenna input power by an amount appropriate to compensate for the increased primary lobe gain of the replacement antenna(s). In no event shall the average equivalent isotropically radiated power (EIRP), as referenced to an isotropic radiator, exceed the values specified below. In cases of harmful interference, the Commission may, after notice and opportunity for hearing, order a change in the effective radiated power of this station. Further, the output power of a transmitter on any authorized frequency in this service may not exceed the following:

Frequency band (MHz)	Maximum allowable EIRP [1 2]	
	Fixed [1 2] (dBW)	Mobile (dBW)
928.0–929.0(2)	+17	
932.0–932.5(2)	+17	
932.5–935.0	+40	
941.0–941.5(2)	+30	+14
941.5–944.0	+40	
952.0–960.0(2)	+40	+14
1,850–1,990	+45	
2,110–2,150	+45	
2,150–2,180 [3]	+45	
2,180–2,200	+45	
2,450–2,500	+45	
2,500–2,686		
2,686–2,690	+45	
3,700–4,200	+55	
5,925–6,425	+55	
6,425–6,525		+35
6,525–6,875	+55	
6,875–7,125	+55	
10,550 to 10,600 [5]	+55	
10,600 to 10,680 [5]	+40	
10,700–11,700	+55	
12,200–12,700 [11]	+50	
12,700–13,200 [4]	+50	
13,200–13,250 [4]	+55	
14,200–14,400 [12]	+45	
17,700–18,600	+55	

Frequency band (MHz)	Maximum allowable EIRP [1 2]	
	Fixed [1 2] (dBW)	Mobile (dBW)
18,600–18,800 [6]	+35	
18,800–19,700	[5] +55	
21,200–23,600 [10]	+55	
24,250–25,250	[5] +55	
27,500–28,350 [9]	+55	
29,100–29,250	([7])	
31,000 to 31,075 [8 9]	30 dBW/MHz	30 dBW/MHz
31,075 to 31,225 [8 9]	30 dBW/MHz	30 dBW/MHz
31,225 to 31,300 [8 9]	30 dBW/MHz	30 dBW/MHz
38,600–40,000	+55	
71,000–76,000 [13]	+55	+55
81,000–86,000 [13]	+55	+55
92,000–95,000	+55	+55

[1] Per polarization.
[2] For multiple address operations, see § 101.147. Remote alarm units that are part of a multiple address central station projection system are authorized a maximum of 2 watts.
[3] When an omnidirectional antenna is authorized in the 2150–2160 MHz band, the maximum power shall be 60 dBm.
[4] Also see § 101.145.
[5] The output power of a DEMS System nodal transmitter shall not exceed 0.5 watt per 250 kHz. The output power of a DEMS System user transmitter shall not exceed 0.04 watt per 250 kHz. The transmitter power in terms of the watts specified is the peak envelope power of the emission measured at the associated antenna input port. The operating power shall not exceed the authorized power by more than 10 percent of the authorized power in watts at any time. Frequencies from 10,600–10,680 MHz are subject to footnote US265 in the Table of Frequency Allocations in § 2.106 of the Commission's Rules. Stations authorized prior to April 1, 2003 to exceed the 40 dBW limit may continue to operate at their authorized output power level indefinitely, provided that neither end point of the relevant link is relocated.
[6] Maximum power delivered to the antenna shall not exceed -3 dBw.
[7] See § 101.113(c).
[8] For stations authorized prior to March 11, 1997, and for non-Local Multipoint Distribution Service stations authorized pursuant to applications refiled no later than June 26, 1998, the transmitter output power shall not exceed 0.050 watt.
[9] For subscriber transceivers authorized in these bands, the EIRP shall not exceed 55 dBw or 42 dBw/MHz.
[10] See § 101.147(s).
[11] The EIRP for MVDDS stations is limited to 14.0 dBm per 24 MHz (−16.0 dBW per 24 MHz). Incumbent point-to-point stations may use up to +50 dBW except for low power systems which were licensed under § 101.147(q).
[12] Beginning March 1, 2005, no new LTTS operators will be licensed and no existing LTTS licensees will be renewed in the 14.2–14.4 GHz band.
[13] The maximum transmitter power is limited to 3 watts (5 dBW) unless a proportional reduction in maximum authorized EIRP is required under § 101.115. The maximum transmitter power spectral density is limited to 150 mW per 100 MHz.

(b) The power of transmitters that use Automatic Transmitter Power Control shall not exceed the power input or output specified in the instrument of station authorization. The power of non-ATPC transmitters shall be maintained as near as practicable to the power input or output specified in the instrument of station authorization.

(c)(1) *Transmitter power limitations.* Point-to-point stations in the 29.1–29.25 GHz band for the LMDS backbone between LMDS hubs shall be limited to a maximum allowable e.i.r.p. density per carrier of 23 dBW/MHz in any one megahertz in clear air, and may exceed this limit by employment of adaptive power control in cases where link propagation attenuation exceeds the clear air value due to precipitation and only to the extent that the link is impaired.

(2) *Hub transmitter EIRP spectral area, density limit.* LMDS applicants shall demonstrate that, under clear air operating conditions, the maximum aggregate of LMDS transmitting hub stations in a Basic Trading Area in the 29.1–29.25 GHz band will not transmit a co-frequency hub-to-subscriber e.i.r.p. spectral area density in any azimuthal direction in excess of X dBW/(MHz-km^2) when averaged over any 4.375 MHz band, where X is defined in Table 1. Individual hub stations may exceed their clear air e.i.r.p.s by employment of adaptive power control in cases where link propagation attenuation exceeds the clear air value and only to the extent that the link is impaired.

(i) The e.i.r.p. aggregate spectral area density is calculated as follows:

$$10\log_{10}\ 1/A\sum_{i=1}^{N} pigi\ \text{dBW/MHz-km}^2$$

where:

N = number of co-frequency hubs in BTA.
A = Area of BTA in km^2.
pi = spectral power density into antenna of i-th hub (in W/MHz).
gi = gain of i-th hub antenna at zero degree elevation angle.
Each pi and gi are in the same 1 MHz within the designated frequency band.

(ii) The climate zones in Table 1 are defined for different geographic locations within the US as shown in Appendix 28 of the ITU Radio Regulations.

TABLE 1 [1]

Climate zone	e.i.r.p. Spectral Density (Clear Air) (dBW/MHz-km^2) [2]
1	−23
2	−25
3,4,5	−26

[1] LMDS system licensees in two or more BTAs may individually or collectively deviate from the spectral area density computed above by averaging the power over any 200 km by 400 km area, provided that the aggregate interference to the satellite receiver is no greater than if the spectral area density were as specified in Table 1. A showing to the Commission comparing both methods of computation is required and copies shall be served on any affected non-GSO 20/30 GHz MSS providers.
[2] See § 21.1007(c)(i) for the population density of the BTA.

(3) *Hub transmitter e.i.r.p. spectral area density limit at elevation angles above the*

horizon. LMDS applicants shall demonstrate that, under clear air operating conditions, the maximum aggregate of LMDS transmitting hub stations in a Basic Trading Area in the 29.1–29.25 GHz band will not transmit a co-frequency hub-to-subscriber e.i.r.p. spectral area density in any azimuthal direction in excess of X dBW/(MHz-km^2) when averaged over any 4.375 MHz band where X is defined in Table 2. Individual hub stations may exceed their clear air e.i.r.p.s by employment of adaptive power control in cases where link propagation attenuation exceeds the clear air value and only to the extent that the link is impaired.

(i) The e.i.r.p. aggregate spectral area density is calculated as follows:

$$10\log_{10}\ 1/A\sum_{i=1}^{N}\text{e.i.r.p.(ai) dBW/MHz-km}^2$$

where:

N = number of co-frequency hubs in BTA.

A = Area of BTA in km^2.

e.i.r.p. (ai) = equivalent isotropic radiated spectral power density of the i-th hub (in W/MHz) at elevation angle a where a is the angle in degrees of elevation above horizon. e.i.r.p.(0°) is the hub e.i.r.p. area density at the horizon used in Section 101.113c(2). The nominal antenna pattern will be used for elevation angles between 0° and 8°, and average levels will be used for angles beyond 8°, where average levels will be calculated by sampling the antenna patterns in each 1° interval between 8° and 9015, dividing by 83.

TABLE 2

Elevation angle (a)	Relative e.i.r.p. density (dBW/MHz-km^2)
0° ≤a ≤4.0°	e.i.r.p.(a) = e.i.r.p.(0°) + 20 log (sinΠ x)(1/Π x) where x = (a + 1)/7.5°.
4.0° <a ≤7.7°	e.i.r.p.(a) = e.i.r.p.(0°) - 3.85a + 7.7.
a >7.7°	e.i.r.p.(a) = e.i.r.p.(0°) - 22.

(ii) LMDS system licensees in two or more BTAs may individually or collectively deviate from the spectral area density computed above by averaging the power over any 200 km by 400 km area, provided that the aggregate interference to the satellite receiver is no greater than if the spectral area density were as specified in Table 1. A showing to the Commission comparing both methods of computation is required and copies shall be served on any affected non-GSO MSS providers.

(4) *Power reduction techniques*. LMDS hub transmitters shall employ methods to reduce average power levels received by non-geostationary mobile satellite receivers, to the extent necessary to comply with paragraphs (c)(1) and (c)(2) of this section, by employing the methods set forth below:

(i) *Alternate polarizations*. LMDS hub transmitters in the LMDS service area may employ both vertical and horizontal linear polarizations such that 50 percent (plus or minus 10 percent) of the hub transmitters shall employ vertical polarization and 50 percent (plus or minus 10 percent) shall employ horizontal polarization.

(ii) *Frequency interleaving*. LMDS hub transmitters in the LMDS service area may employ frequency interleaving such that 50 percent (plus or minus 10 percent) of the hub transmitters shall employ channel center frequencies which are different by one-half the channel bandwidth of the other 50 percent (plus or minus 10 percent) of the hub transmitters.

(iii) *Alternative methods*. As alternatives to paragraphs (c)(4)(i) and (c)(4)(ii) of this section, LMDS operators may employ such other methods as may be shown to achieve equivalent reductions in average power density received by non-GSO MSS satellite receivers.

[61 FR 26677, May 28, 1996]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 101.113, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 101.115 Directional antennas.

(a) Unless otherwise authorized upon specific request by the applicant, each station authorized under the rules of this part must employ a directional antenna adjusted with the center of the major lobe of radiation in the horizontal plane directed toward the receiving station with which it communicates: *provided*, *however*, where a station communicates with more than one point, a multi- or omni-directional antenna may be authorized if necessary. New Periscope antenna systems will

not, under ordinary circumstances, be authorized.

(b) Fixed stations (other than temporary fixed stations and DEMS nodal stations) operating at 932.5 MHz or higher must employ transmitting and receiving antennas (excluding second receiving antennas for operations such as space diversity) meeting the appropriate performance Standard A indicated below, except that in areas not subject to frequency congestion, antennas meeting performance Standard B may be used, subject to the requirements set forth in paragraph (d) of this section. For frequencies with a Standard B1 and a Standard B2, in order to comply with Standard B an antenna must fully meet either Standard B1 or Standard B2. Licensees shall comply with the antenna standards table shown in this paragraph in the following manner:

(1) With either the maximum beamwidth to 3 dB points requirement or with the minimum antenna gain requirement; and

(2) With the minimum radiation suppression to angle requirement.

ANTENNA STANDARDS

Frequency (MHz)	Category	Maximum beamwidth to 3 dB points [1] (included angle in degrees)	Minimum antenna gain (dbi)	Minimum radiation suppression to angle in degrees from centerline of main beam in decibels						
				5° to10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°
932.5 to 935	A	14.0	n/a	n/a	6	11	14	17	20	24
	B	20.0	n/a	n/a	n/a	6	10	13	15	20
941.5 to 944	A	14.0	n/a	n/a	6	11	14	17	20	24
	B	20.0	n/a	n/a	n/a	6	10	13	15	20
952 to 960 [2 3]	A	14.0	n/a	n/a	6	11	14	17	20	24
	B	20.0	n/a	n/a	n/a	6	10	13	15	20
1,850 to 2,500 [4]	A	5.0	n/a	12	18	22	25	29	33	39
	B	8.0	n/a	5	18	20	20	25	28	36
3,700 to 4,200	A	2.7	36	23	29	33	36	42	55	55
	B	2.7	36	20	24	28	32	32	32	32
	B	2.2	38	21	25	29	32	35	39	45
5,925 to 6,425 [5]	A	2.2	38	25	29	33	36	42	55	55
	B1	2.2	38	21	25	29	32	35	39	45
	B2	4.1	32	15	20	23	28	29	60	60
6,525 to 6,875 [5]	A	2.2	38	25	29	33	36	42	55	55
	B1	2.2	38	21	25	29	32	35	39	45
	B2	4.1	32	15	20	23	28	29	60	60
6,875 to 7,125	A	2.2	38	25	29	33	36	42	55	55
	B1	2.2	38	21	25	29	32	35	39	45
	B2	4.1	32	15	20	23	28	29	60	60
10,550 to 10,680 [7]	A	3.5	33.5	18	24	28	32	35	55	55
	B	3.5	33.5	17	24	28	32	35	40	45
10,565 to 10,615	n/a	360	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10,630 to 10,680 [8]	n/a	3.5	34	20	24	28	32	35	36	36
10,700–11,700 [5]	A	2.2	38	25	29	33	36	42	55	55
	B	3.5	33.5	17	24	28	32	35	40	45
12,200 to 13,250 [9]	A	1.0	n/a	23	28	35	39	41	42	50
	B	2.0	n/a	20	25	28	30	32	37	47
17,700 to 18,820	A	2.2	38	25	29	33	36	42	55	55
	B1	2.2	38	20	24	28	32	35	36	36
	B2	3.3	33.5	18	22	29	31	35	55	55
18,920 to 19,700 [10]	A	2.2	38	25	29	33	36	42	55	55
	B1	2.2	38	20	24	28	32	35	36	36
	B2	3.3	33.5	18	22	29	31	35	55	55
21,200 to 23,600 [7 11]	A	3.3	33.5	18	26	26	33	33	55	55
	B1	3.3	33.5	17	24	24	29	29	40	50
	B2	4.5	30.5	14	19	22	24	29	52	52
24,250 to 25,250 [10]	A	2.8	38	25	29	33	36	42	55	60
	B	2.8	38	20	24	28	32	35	36	45
31,000 to 31,300 [12 13]	n/a	4.0	38	n/a	n/a	n/a	n/a	n/a	n/a	n/a
38,600 to 40,000 [14]	A	n/a	38	25	29	33	36	42	55	55
	B	n/a	38	20	24	28	32	35	36	36
71,000 to 76,000 (co-polar) [15].	N/A	1.2	43	35	40	45	50	50	55	55

ANTENNA STANDARDS—Continued

Frequency (MHz)	Category	Maximum beamwidth to 3 dB points [1] (included angle in degrees)	Minimum antenna gain (dbi)	Minimum radiation suppression to angle in degrees from centerline of main beam in decibels						
				5° to10°	10° to 15°	15° to 20°	20° to 30°	30° to 100°	100° to 140°	140° to 180°
71,000 to 76,000 (cross-polar) [15].	N/A	1.2	43	45	50	50	55	55	55	55
81,000 to 86,000 (co-polar) [15].	N/A	1.2	43	35	40	45	50	50	55	55
81,000 to 86,000 (cross-polar) [15].	N/A	1.2	43	45	50	50	55	55	55	55
92,000 to 95,000	N/A	0.6	50.0	36	40	45	50	55	55	55

[1] If a licensee chooses to show compliance using maximum beamwidth to 3 dB points, the beamwidth limit shall apply in both the azimuth and the elevation planes.

[2] Except for Multiple Address System frequencies listed in §§ 101.147(b)(1) through (b)(4), where omnidirectional antennas may be used.

[3] Antennas used at outlying stations as part of a central protection alarm system need conform to only the following 2 standards:

(i) The minimum on-beam forward gain must be at least 10 dBi, and

(ii) The minimum front-to-back ratio must be at least 20 dB.

[4] Omnidirectional antennas may be authorized in the band 2150–2160 MHz.

[5] These antenna standards apply to all point-to-point stations authorized after June 1, 1997. Existing licensees and pending applicants on that date are grandfathered and need not comply with these standards.

[6] These antenna standards apply to all point-to-point stations authorized on or before June 1, 1997.

[7] Except for antennas between 140° and 180° authorized or pending on January 1, 1989, in the band 10,550 to 10,565 MHz for which minimum radiation suppression to angle (in degrees) from centerline of main beam is 36 decibels.

[8] These antenna standards apply only to DEMS User Stations licensed, in operation, or applied for prior to July 15, 1993.

[9] Except for Temporary-fixed operations in the band 13200–13250 MHz with output powers less than 250 mW and as provided in § 101.147(q), and except for antennas in the MVDDS service in the band 12.2–12.7 GHz.

[10] DEMS User Station antennas in this band must meet performance Standard B and have a minimum antenna gain of 34 dBi. The maximum beamwidth requirement does not apply to DEMS User Stations. DEMS Nodal Stations need not comply with these standards. Stations authorized to operate in the 24,250–25,250 MHz band do not have to meet these standards, however, the Commission may require the use of higher performance antennas where interference problems can be resolved by the use of such antennas.

[11] Except as provided in § 101.147(s).

[12] The minimum front-to-back ratio shall be 38 dBi.

[13] Mobile, except aeronautical mobile, stations need not comply with these standards.

[14] Stations authorized to operate in the 38,600–40,000 MHz band may use antennas other than those meeting the Category A standard. However, the Commission may require the use of higher performance antennas where interference problems can be resolved by the use of such antennas.

[15] Antenna gain less than 50 dBi (but greater than or equal to 43 dBi) is permitted only with a proportional reduction in maximum authorized EIRP in a ratio of 2 dB of power per 1 dB of gain, so that the maximum allowable EIRP (in dBW) for antennas of less than 50 dBi gain becomes $+55-2(50-G)$, where G is the antenna gain in dBi. In addition, antennas in these bands must meet two additional standards for minimum radiation suppression: At angles between 1.2 and 5 degrees from the centerline of the main beam, co-polar discrimination must be $G-28$, where G is the antenna gain in dBi; and at angles of less than 5 degrees from the centerline of main beam, cross-polar discrimination must be at least 25 dB.

(c) The Commission shall require the replacement of any antenna or periscope antenna system of a permanent fixed station operating at 932.5 MHz or higher that does not meet performance Standard A specified in paragraph (c) of this section, at the expense of the licensee operating such antenna, upon a showing that said antenna causes or is likely to cause interference to (or receive interference from) any other authorized or applied for station whereas a higher performance antenna is not likely to involve such interference. Antenna performance is expected to meet the standards of paragraph (c) of this section for parallel polarization. For cases of potential interference, an antenna will not be considered to meet Standard A unless the parallel polarization performance for the discrimination angle involved meets the requirements, even if the cross-polarization performance controls the interference.

(d) In cases where passive reflectors are employed in conjunction with transmitting antenna systems, the foregoing paragraphs of this section also will be applicable. However, in such instances, the center of the major lobe of radiation from the antenna normally must be directed at the passive reflector, and the center of the major lobe of radiation from the passive reflector directed toward the receiving station with which it communicates.

(e) Periscope antennas used at an electric power facility plant area will be excluded from the requirements of paragraph (c) of this section on a case-by-case basis where technical considerations or safety preclude the use of other types of antenna systems.

(f) In the 10,700–11,700 MHz band, a fixed station may employ transmitting and receiving antennas meeting performance standard B in any area. If a Fixed Service or Fixed Satellite Service licensee or applicant makes a showing that it is likely to receive interference from such fixed station and that such interference would not exist if the fixed station used an antenna meeting performance standard A, the fixed station licensee must modify its use. Specifically, the fixed station licensee must either substitute an antenna meeting performance standard A or operate its system with an EIRP reduced so as not to radiate, in the direction of the other licensee, an EIRP in excess of that which would be radiated by a station using a Category A antenna and operating with the maximum EIRP allowed by the rules. A licensee or prior applicant using an antenna that does not meet performance Standard A may object to a prior coordination notice based on interference only if such interference would be predicted to exist if the licensee or prior applicant used an antenna meeting performance standard A.

(g) In the event harmful interference is caused to the operation of other stations, the Commission may, after notice and opportunity for hearing, order changes to be made in the height, orientation, gain and radiation pattern of the antenna system.

[61 FR 26677, May 28, 1996, as amended at 62 FR 4924, Feb. 3, 1997; 62 FR 24582, May 6, 1997; 63 FR 6105, Feb. 6, 1998; 65 FR 38329, June 20, 2000; 65 FR 59358, Oct. 5, 2000; 67 FR 43038, June 26, 2002; 68 FR 4957, Jan. 31, 2003; 69 FR 3267, Jan. 23, 2004; 70 FR 29997, May 25, 2005; 72 FR 55677, Oct. 1, 2007; 73 FR 55775, Sept. 26, 2008; 76 FR 59572, Sept. 27, 2011; 77 FR 54432, Sept. 5, 2012; 77 FR 73957, Dec. 12, 2012]

§ 101.117 Antenna polarization.

Except as set forth herein, stations operating in the radio services included in this part are not limited as to the type of polarization of the radiated signal that may be employed. However, in the event interference in excess of permissible levels is caused to the operation of other stations as a result of employing other than linear polarization, the Commission may order a licensee to change its system polarization to mitigate the interference. No change in polarization may be made without prior authorization from the Commission. Unless otherwise allowed, only linear polarization (horizontal and vertical) shall be used. For LMDS systems, unless otherwise authorized, system operators are permitted to use any polarization within its service area, but only vertical and/or horizontal polarization for antennas located within 20 kilometers of the outermost edge of their service area.

[68 FR 4957, Jan. 31, 2003]

§ 101.119 Simultaneous use of common antenna structures.

The simultaneous use of common antenna structures by more than one radio station, or by one of more domestic public radio stations and one or more stations of any other class or service, may be authorized: provided, however, that each licensee or user of any such structure is responsible for maintaining the structure, and for painting and illuminating the structure when obstruction marking is required by the Commission. (See § 101.21(a).)

§ 101.125 Temporary fixed antenna height restrictions.

The overall antenna structure heights employed by mobile stations in the Local Television Transmission Service and by stations authorized to operate at temporary fixed locations may not exceed the height criteria set forth in § 17.7 of this chapter, unless in each instance, authorization for use of a specific maximum antenna height (above ground and above mean sea level) for each location has been obtained from the Commission prior to erection of the antenna. Requests for such authorization must show the inclusive dates of the proposed operation. (Complete information as to rules concerning the construction, marking and lighting of antenna structures is contained in part 17 of this chapter.)

§ 101.129 Transmitter location.

(a) The applicant must determine, prior to filing an application for a radio station authorization, that the antenna site specified therein is adequate to render the service proposed. In cases of questionable antenna locations, it is desirable to conduct propagation tests to indicate the field intensity which may be expected in the principal areas or at the fixed points of communication to be served, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site survey tests to be made pursuant to an experimental license under part 5 of this chapter. In such cases, propagation tests should be conducted in accordance with recognized engineering methods and should be made with a transmitting antenna simulating, as near as possible, the proposed antenna installation. Full data obtained from such surveys and its analysis, including a description of the methods used and the name, address and qualifications of the engineer making the survey, must be supplied to the Commission.

(b) In the 12.2–12.7 GHz band, licensees must not locate MVDDS transmitting antennas within 10 km of any qualifying NGSO FSS receiver unless mutual agreement is obtained between the MVDDS and NGSO FSS licensees. Such agreements must be retained by the licensees and made available for inspection by interested parties upon request.

(1) A qualifying NGSO FSS receiver, for the purposes of this section, is deemed to be one that is in regular use by an NGSO FSS subscriber for normal reception purposes in the 12.2–12.7 GHz band and not one for monitoring or testing purposes. In addition, qualifying receivers must either be in operation on the date or already be under construction and then operating within thirty days of the date that the MVDDS licensee notifies the NGSO FSS licensee of its intent to construct a new MVDDS transmitting antenna at a specified location.

(2) Except as provided in paragraph (b)(3) of this section, the 10 kilometer spacing requirement for each MVDDS transmitting antenna site shall not apply with respect to NGSO FSS receivers that might be installed or become operational (except for those under construction and operating within thirty days as specified in paragraph (b)(1) of this section) subsequent to the original date that the MVDDS licensee provided notice of its intention to construct a given transmission facility.

(3) In the event that a proposed MVDDS transmitting antenna for which notice has been duly given to the NGSO FSS licensees has not been placed in normal operation within one calendar year of the date of notice, then the MVDDS licensee loses the benefit of the original notice. Upon such anniversary, the MVDDS licensee must re-determine compliance with the minimum 10 kilometer spacing requirement based upon locations of qualifying NGSO FSS receivers on that anniversary date. A new determination of compliance with the spacing requirement shall be made for each succeeding anniversary of non-operation for each proposed MVDDS transmission site or additional antenna. This provision contemplates that failure to commence normal operation at a given MVDDS transmitting antenna site within one year of the date of NGSO FSS notification may require successive relocations of the proposed transmitter site in order to meet the minimum spacing distance as determined on each anniversary of non-operation.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68983, Dec. 14, 1998; 67 FR 43038, June 26, 2002; 78 FR 25176, Apr. 29, 2013]

§ 101.131 Transmitter construction and installation.

(a) The equipment at the operating and transmitting positions must be so installed and protected that it is not accessible to, or capable of being operated by, persons other than those duly authorized by the licensee.

(b) In any case where the maximum modulating frequency of a transmitter is prescribed by the Commission, the transmitter must be equipped with a low-pass or band-pass modulation filter of suitable performance characteristics. In those cases where a modulation limiter is employed, the modulation filter must be installed between the

transmitter stage in which limiting is effected and the modulated stage of the transmitter.

(c) Each transmitter employed in these services must be equipped with an appropriately labeled pilot lamp or meter which will provide continuous visual indication at the transmitter when its control circuits have been placed in a condition to activate the transmitter. In addition, facilities must be provided at each transmitter to permit the transmitter to be turned on and off independently of any remote control circuits associated therewith.

(d) At each transmitter control point the following facilities must be installed:

(1) A carrier operated device which will provide continuous visual indication when the transmitter is radiating, or, in lieu thereof, a pilot lamp or meter which will provide continuous visual indication when the transmitter control circuits have been placed in a condition to activate the transmitter; and

(2) Facilities which will permit the operator to turn transmitter carrier on and off at will.

(e) Transmitter control circuits from any control point must be so installed that grounding or shorting any line in the control circuit will not cause the transmitter to radiate: provided, however, That this provision will not be applicable to control circuits of stations which normally operate with continuous radiation or to control circuits which are under the effective operational control of responsible operating personnel 24 hours per day.

§ 101.133 Limitations on use of transmitters.

(a) Transmitters licensed for operation in Common Carrier services may be concurrently licensed or used for non-common carrier communication purposes. Mobile units may be concurrently licensed or used for non-common carrier communication purposes provided that the transmitter is certificated for use in each service.

(b) Private operational fixed point-to-point microwave stations authorized in this service may communicate with associated operational-fixed stations and fixed receivers and with units of associated stations in the mobile service licensed under Private Radio Service rule parts. In addition, intercommunication is permitted with other licensed stations and with U.S. Government stations in those cases which require cooperation or coordination of activities or when cooperative use arrangements in accordance with § 101.135 are contemplated; provided, however, that where communication is desired with stations authorized to operate under the authority of a foreign jurisdiction, prior approval of this Commission must be obtained; And provided further, That the authority under which such other stations operate does not prohibit the intercommunication.

(c) Two or more persons or governmental entities eligible for private operational fixed point-to-point microwave licenses may use the same transmitting equipment under the following terms and conditions:

(1) Each licensee complies with the general operating requirements set out in this part;

(2) Each licensee is eligible for the frequency(ies) on which the facility operates; and

(3) Each licensee must have the ability to access the transmitter(s) that it is authorized to operate under the multiple licensing arrangement.

(d) *LMDS subscriber transmissions.* LMDS licensees shall not operate transmitters from subscriber locations in the 29.1–29.25 GHz band.

(e) Existing private operational fixed wireless licensees applying to become common carrier wireless licensees shall comply with all provisions of the Communications Act and the Commission's rules. Applicants must take all required filings, including FCC Form 601, and receive all necessary Commission approval prior to operating as a common carrier wireless licensee. The regulatory fee associated with FCC wireless application Form 601 is waived for applicants who are existing private operational fixed licensees seeking common carrier status, provided that such licensees have also complied with all other discontinuance requirements

of Title II of the Act. Applicants are responsible for all other Commission regulatory fees.

[61 FR 26677, May 28, 1996, as amended at 61 FR 44183, Aug. 28, 1996; 63 FR 36611, July 7, 1998; 68 FR 4957, Jan. 31, 2003]

§ 101.135 Shared use of radio stations and the offering of private carrier service.

Licensees of Private Operational Fixed Point-to-Point Microwave radio stations may share the use of their facilities on a non-profit basis or may offer service on a for-profit private carrier basis, subject to the following conditions and limitations:

(a) Persons or governmental entities licensed to operate radio systems pursuant to subpart H of this part on any of the private radio frequencies set out in § 101.101 may share such systems with, or provide private carrier service to, any eligible entity for licensing under this part, regardless of individual eligibility restrictions, provided that the communications being carried are permissible under § 101.603.

(b) The licensee must maintain access to and control over all facilities authorized under its license;

(c) All sharing and private carrier arrangements must be conducted pursuant to a written agreement to be kept as part of the station records; and

(d) The licensee must keep an up-to-date list of system sharers and private carrier subscribers and the basis of their eligibility under this part. Such records must be kept current and must be made available upon request for inspection by the Commission.

(e) Applicants licensed in the MAS frequencies after June 2, 2000, shall not provide service to others on a for-profit private carrier basis in the 928–928.85/952–952.85/956.25–956.45 MHz bands and the 932.25–932.5/941.25–941.5 MHz bands.

[61 FR 26677, May 28, 1996, as amended at 65 FR 17449, Apr. 3, 2000; 65 FR 38330, June 20, 2000; 66 FR 35110, July 3, 2001; 68 FR 4958, Jan. 31, 2003]

§ 101.137 Interconnection of private operational fixed point-to-point microwave stations.

Private operational fixed point-to-point microwave stations may be interconnected with facilities of common carriers subject to applicable tariffs.

§ 101.139 Authorization of transmitters.

(a) Unless specified otherwise, transmitters used in the private operational fixed and common carrier fixed point-to-point microwave and point-to-multipoint services under this part must be a type that has been verified for compliance.

(b) Any manufacturer of a transmitter to be produced for use under the rules of this part may request certification or obtain verification by following the applicable procedures set forth in part 2 of this chapter.

(c) Certification for an individual transmitter may also be requested by an applicant for a station authorization, pursuant to the procedures set forth in part 2 of this chapter.

(d) A transmitter presently shown on an instrument of authorization, which operates on an assigned frequency in the 890–940 MHz band and has not been certificated, may continue to be used by the licensee without certification provided such transmitter continues otherwise to comply with the applicable rules and regulations of the Commission.

(e) Certification or verification is not required for portable transmitters operating with peak output power not greater than 250 mW. If operation of such equipment causes harmful interference the FCC may, at its discretion, require the licensee to take such corrective action as is necessary to eliminate the interference.

(f) After July 15, 1996, the manufacturer (except for export) or importation of equipment employing digital modulation techniques in the 3700–4200, 5925–6425, 6525–6875, 10,550–10,680 and 10,700–11,700 MHz bands must meet the minimum payload capacity requirements of § 101.141.

(g) After April 1, 2005, the manufacture (except for export) or importation of equipment for operation in the 21,200–23,600 MHz band must meet:

(1) The 0.001% frequency tolerance requirement for digital systems in § 101.107(a) or the 0.03–0.003% frequency tolerance for analog sytems; and

(2) For equipment employing digital modulation techniques, the minimum bit rate requirements of § 101.141(a).

(h) *71,000–76,000 MHz; 81,000–86,000 MHz*. For equipment employing digital modulation techniques, the minimum bit rate requirement is 0.125 bit per second per Hz.

(i) *92,000–94,000 MHz; 94,100–95,000 MHz*. For equipment employing digital modulation techniques, the minimum bit rate requirement is 1.0 bit per second per Hz.

[63 FR 36611, July 7, 1998, as amended at 65 FR 59358, Oct. 5, 2000; 67 FR 43038, June 26, 2002; 68 FR 4958, Jan. 31, 2003; 70 FR 29998, May 25, 2005]

§ 101.141 Microwave modulation.

(a) Microwave transmitters employing digital modulation techniques and operating below 25.25 GHz (except for MVDDS stations in the 12,200–12,700 MHz band) must, with appropriate multiplex equipment, comply with the following additional requirements:

(1) The bit rate, in bits per second, must be equal to or greater than the bandwidth specified by the emission designator in Hertz (*e.g.*, to be acceptable, equipment transmitting at a 20 Mb/s rate must not require a bandwidth of greater than 20 MHz), except the bandwidth used to calculate the minimum rate may not include any authorized guard band.

(i) Stations authorized prior to December 1, 1988 may install equipment after that date with no minimum bit rate. Equipment applied for or authorized prior to April 1, 2005 in the 21.2–23.6 GHz band may be installed with no minimum bit rate.

(ii) However, any digital equipment applied for after April 1, 2005 and equipment replacing existing equipment in the 21.2–23.6 GHz band must meet the bit rate standard.

(2) Equipment to be used for voice transmission placed in service, authorized, or applied for on or before June 1, 1997 in the 2110 to 2130 and 2160 to 2180 MHz bands must be capable of satisfactory operation within the authorized bandwidth to encode at least 96 voice channels. Equipment placed in service, authorized, or applied for on or before June 1, 1997 in the 3700–4200, 5925–6425 (30 MHz bandwidth), and 10,700–11,700 MHz (30 and 40 MHz bandwidths) bands must be capable of satisfactory operation within the authorized bandwidth to encode at least 1152 voice channels. These required loading levels may be reduced by a factor of 1/N provided that N transmitters may be operated satisfactorily, over the same radio path, within an authorized bandwidth less than, or equal to, the maximum authorizable bandwidth (*e.g.*, the 1152 channel requirement may be reduced to 576 if two transmitters can be satisfactorily operated over the same path within the maximum bandwidth). Where certificated equipment is designed to operate on the same frequency in a cross polarized configuration to meet the above capacity requirements, the Commission will require, at the time additional transmitters are authorized, that both polarizations of a frequency be used before a new frequency assignment is made, unless a single transmitter installation was found to be justified by the Commission at the time it authorized the first transmitter.

(3)(i) Except as noted in paragraph (a)(7) of this section, the payload capacity of equipment shall meet the following minimum efficiency standards:

Frequency	Emission bandwidth ≤5 MHz	Emission bandwidth >5 MHz and ≤20 MHz	Emission bandwidth >20 MHz
3,700–10,550 MHz	2.4 bits/second/Hertz	4.4 bits/second/Hertz	4.4 bits/second/Hertz.
10,550–13,250 MHz	2.4 bits/second/Hertz	4.4 bits/second/Hertz	3.0 bits/second/Hertz.

(ii) Traffic loading payload shall exceed 50 percent of payload capacity within 30 months of licensing. During anomalous signal fading, licensees subject to the capacity and loading requirements may adjust to a modulation specified in their authorization if such modulation is necessary to allow licensees to maintain communications, even if the modulation will not comply with the capacity and loading requirements specified in this paragraph.

Links that must comply with the capacity and loading requirements that use equipment capable of adjusting modulation must be designed using generally accepted multipath fading and rain fading models to meet the specified capacity and loading requirements at least 99.95% of the time, in the aggregate of both directions in a two-way link.

(4) If a transmitter is authorized to operate in a bandwidth that is not listed in paragraph (a)(3) of this section, it must meet the minimum payload capacity and traffic loading requirements of the next largest channel bandwidth listed in the table; *e.g.*, if the authorized bandwidth is 3.5 MHz, the minimum payload capacity must be 12.3 Mbits/s.

(5) Transmitters carrying digital motion video motion material are exempt from the requirements specified in paragraphs (a)(2) and (a)(3) of this section, provided that at least 50 percent of the payload is digital video motion material and the minimum bit rate specified in paragraph (a)(1) of this section is met. In the 6, 10, and 11 GHz bands, concatenation of multiple contiguous channels is permitted for channels of equal bandwidth on center frequencies, provided no other channels are available and the minimum payload capacity requirements are met.

(6) Digital systems using bandwidths of 10 MHz or larger will be considered 50 percent loaded when at least 50 percent of their total capacity is being used. For purposes of this subsection, a Fixed Service channel is being used if it is attached to a communications system that is capable of providing data to it at a rate that is sufficient to occupy at least 50 percent of the payload capacity of the Fixed Service channel, after header compression is applied.

(7) Equipment placed in service after June 1, 1997 and prior to October 5, 2012 may comply with the provisions of § 101.141(a)(3) in effect as of the date the equipment was placed in service.

(b) For purposes of compliance with the emission limitation requirements of § 101.111(a)(2) and the requirements of paragraph (a) of this section, digital modulation techniques are considered as being employed when digital modulation occupies 50 percent or more to the total peak frequency deviation of a transmitted radio frequency carrier. The total peak frequency deviation will be determined by adding the deviation produced by the digital modulation signal and the deviation produced by any frequency division multiplex (FDM) modulation used. The deviation (D) produced by the FDM signal must be determined in accordance with § 2.202(f) of this chapter.

(c) Analog Modulation. Except for video transmission, an application for an initial working channel for a given route will not be accepted for filing where the anticipated loading (within five years for voice, or other period subject to reasonable projection) is less than the minimum specified for the following frequency bands. Absent extraordinary circumstances, applications proposing additional frequencies over existing routes will not be granted unless it is shown that the traffic load will shortly exhaust the capacity of the existing equipment. Where no construction of radio facilities is requested, licensees must submit this evidence with their filing of any necessary authority required pursuant to section 214 of the Communications Act and part 63 of this chapter.

Frequency band (MHz)	Minimum number of voice channels (4 KHz or equivalent)
3700 to 4200 (20 MHz bandwidth)	900
5925 to 6425 (10 MHz bandwidth)	300
5925 to 6425 (20 MHz bandwidth)	600
5925 to 6425 (30 MHz bandwidth)	900
6525 to 6875 (10 MHz bandwidth)	300
10,700 to 11,700 (10 MHz bandwidth)	300
10,700 to 11,700 (20 MHz bandwidth)	600
10,700 to 11,700 (30 MHz bandwidth)	900
10,700 to 11,700 (40 MHz bandwidth)	900

[61 FR 26677, May 28, 1996, as amended at 62 FR 24583, May 6, 1997; 63 FR 36611, July 7, 1998; 65 FR 59358, Oct. 5, 2000; 67 FR 43039, June 26, 2002; 68 FR 4958, Jan. 31, 2003; 76 FR 59572, Sept. 27, 2011; 77 FR 54433, Sept. 5, 2012]

§ 101.143 Minimum path length requirements.

(a) The distance between end points of a fixed link in the private operational fixed point-to-point and the common carrier fixed point-to-point microwave services must equal or exceed the value set forth in the table

below or the EIRP must be reduced in accordance with the equation set forth below:

Frequency band (MHz)	Minimum path length (km)
Below 1,850	N/A
1,850 to 7,125	17
10,550 to 13,250	5
Above 17,700	N/A

(b) For paths shorter than those specified in the table in paragraph (a) of this section, the EIRP shall not exceed the value derived from the following equation:

EIRP = MAXEIRP–40*log(A/B) dBW

Where: EIRP = The new maximum EIRP (equivalent isotropically radiated power) in dBW. MAXEIRP = Maximum EIRP as set forth in the Table in Section 101.113(a).

A = Minimum path length from the Table above for the frequency band in kilometers.

B = The actual path length in kilometers.

NOTE TO PARAGRAPH (b): For transmitters using Automatic Transmitter Power Control, EIRP corresponds to the maximum transmitter power available, not the coordinated transmit power or the nominal transmit power.

(c) Upon an appropriate technical showing, applicants and licensees unable to meet the minimum path length requirement may be granted an exception to these requirements.

NOTE TO PARAGRAPH (c): Links authorized prior to April 1, 1987, need not comply with this requirement.

[61 FR 26677, May 28, 1996, as amended at 65 FR 38330, June 20, 2000]

§ 101.145 Interference to geostationary-satellites.

These limitations are necessary to minimize the probability of harmful interference to reception in the bands 2655–2690 MHz, 5925–7075 MHz, and 12.7–13.25 GHz on board geostationary-space stations in the fixed-satellite service.

(a) Stations authorized prior to July 1, 1976 in the band 2655–2690 MHz, which exceed the power levels in paragraphs (b) and (c) of this section are permitted to operate indefinitely, provided that the operation of such stations does not result in harmful interference to reception in these bands on board geostationary space stations.

(b) *2655 to 2690 MHz and 5925 to 7075 MHz.* No directional transmitting antenna utilized by a fixed station operating in these bands with EIRP greater than 35 dBW may be aimed within 2 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction. However, exception may be made in unusual circumstances upon a showing that there is no reasonable alternative to the transmission path proposed. If there is no evidence that such exception would cause possible harmful interference to an authorized satellite system, said transmission path may be authorized on waiver basis where the maximum value of the equivalent isotropically radiated power (EIRP) does not exceed:

(1) +47 dBW for any antenna beam directed within 0.5 degrees of the stationary satellite orbit; or

(2) +47 to +55 dBW, on a linear decibel scale (8 dB per degree) for any antenna beam directed between 0.5 degrees and 1.5 degrees of the stationary orbit.

(c) *12.7 to 13.25 GHz.* No directional transmitting antenna utilized by a fixed station operating in this band with EIRP greater than 45 dBW may be aimed within 1.5 degrees of the geostationary-satellite orbit, taking into account atmospheric refraction.

(d) Methods for calculating the azimuths to be avoided may be found in: CCIR Report No. 393 (Green Books), New Delhi, 1970; in ''Radio-Relay Antenna Pointing for controlled Interference With Geostationary-Satellites'' by C. W. Lundgren and A. S. May, Bell System Technical Journal, Vol. 48, No. 10, pp. 3387–3422, December 1969; and in ''Geostationary Orbit Avoidance Computer Program'' by Richard G. Gould, Common Carrier Bureau Report CC–7201, FCC, Washington, DC, 1972. This latter report is available through the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22151, in printed form (PB–211 500) or source card deck (PB–211 501).

[61 FR 26677, May 28, 1996, as amended at 65 FR 38330, June 20, 2000; 68 FR 12777, Mar. 17, 2003; 77 FR 54433, Sept. 5, 2012]

§ 101.147 Frequency assignments.

(a) Frequencies in the following bands are available for assignment for fixed microwave services.

928.0–929.0 MHz (28)
932.0–932.5 MHz (27)
932.5–935 MHz (17)
941.0–941.5 MHz (27)
941.5–944 MHz (17) (18)
952.0–960.0 MHz (28)
1,850–1,990 MHz (20) (22)
2,110–2,130 MHz) (1) (3) (7) (20) (23)
2,130–2,150 MHz (20) (22)
2,160–2,180 MHz (1) (2) (20) (23)
2,180–2,200 MHz (20) (22)
2,450–2,500 MHz (12)
2,650–2,690 MHz
3,700–4,200 MHz (8) (14) (25)
5,925–6,425 MHz (6) (14) (25)
6,425–6,525 MHz (24)
6,525–6.875 MHz (14) (33)
6,875–7,125 MHz (10), (34)
10,550–10,680 MHz (19)
10,700–11,700 MHz (8) (9) (19) (25)
11,700–12,200 MHz (24)
12,200–12,700 MHz (31)
12,700–13,200 (22), (34)
13,200–13,250 MHz (4) (24) (25)
14,200–14,400 MHz (24)
17,700–18,820 MHz (5) (10) (15)
17,700–18,300 MHz (10) (15)
18,820–18,920 MHz (22)
18,300–18,580 MHz (5) (10) (15)
18,580–19,300 MHz (22) (30)
18,920–19,160 MHz (5 (10) (15)
19,160–19,260 MHz (22)
19,260–19,700 MHz (5) (10) (15)
19,300–19,700 MHz (5) (10) (15)
21,200–22,000 MHz (4) (11) (12) (13) (24) (25) (26)
22,000–23,600 MHz (4) (11) (12) (24) (25) (26)
24,250–25,250 MHz
27,500–28,350 MHz (16)
29,100–29,250 MHz (5), (16)
31,000–31,300 MHz (16)
37,000–40,000 MHz (4)(32)
42,000–42,500 MHz
71,000–76,000 MHz (5) (17)
81,000–86,000 MHz (5) (17)
92,000–94,000 MHz (17)
94,100–95,000 MHz (17)

Notes

(1) Frequencies in this band are shared with control and repeater stations in the Public Mobile Services and with stations in the International Fixed Public Radio communication Services located south of 25°30′ north latitude in the State of Florida and U. S. possessions in the Caribbean area. Additionally, the band 2160–2162 MHz is shared with stations in the Multipoint Distribution Service.

(2) Except upon showing that no alternative frequencies are available, no new assignments will be made in the band 2160–2162 MHz for stations located within 80.5 kilometers (50 miles) of the coordinates of the cities listed in § 21.901(c) of this chapter.

(3) Television transmission in this band is not authorized and radio frequency channel widths may not exceed 3.5 MHz.

(4) Frequencies in this band are shared with fixed and mobile stations licensed in other services.

(5) Frequencies in this band are shared with stations in the fixed-satellite service.

(6) These frequencies are not available for assignment to mobile earth stations.

(7) Frequencies in the band 2110–2120 MHz may be authorized on a case-by-case basis to Government or non-Government space research earth stations for telecommand purposes in connection with deep space research.

(8) This frequency band is shared with station(s) in the Local Television Transmission Service and, in the U.S. Possessions in the Caribbean area, with stations in the International Fixed Public Radiocommunications Services.

(9) The band segments 10.95–11.2 and 11.45–11.7 GHz are shared with space stations (space to earth) in the fixed-satellite service.

(10) This band is co-equally shared with stations in the fixed services under parts 74, 78 and 101 of this chapter.

(11) Frequencies in this band are shared with Government stations.

(12) Frequencies in this band are available for assignment to the common carrier and private-operational fixed point-to-point microwave services.

(13) Frequencies in this band are shared with stations in the earth exploration satellite service (space to earth).

(14) Frequencies in this band are shared with stations in the fixed-satellite service.

(15) Stations licensed as of September 9, 1983 to use frequencies in the 17.7–19.7 GHz band may, upon proper application, continue to be authorized for such operation.

(16) As of June 30, 1997, frequencies in these bands are available for assignment only to LMDS radio stations, except for non-LMDS radio stations authorized pursuant to applications refiled no later than June 26, 1998.

(17) Frequencies in these bands are shared with Government fixed stations and stations in the Private Operational Fixed Point-to-Point Microwave Service (part 101).

(18) Frequencies in the 942 to 944 MHz band are also shared with broadcast auxiliary stations.

(19) Frequencies in this band are shared with stations in the private-operational fixed point-to-point microwave service.

(20) New facilities in these bands will be licensed only on a secondary basis. Facilities licensed or applied for before January 16, 1992, are permitted to make minor modifications in accordance with § 101.81 and retain their primary status.

(21) Any authorization of additional stations to use the 2160–2162 MHz band for Multipoint Distribution Service applied for after January 16, 1992, will be secondary to use of the band for emerging technology services.

(22) Frequencies in these bands are for the exclusive use of Private Operational Fixed Point-to-Point Microwave Service (part 101). Frequencies in the 12,700–13,200 MHz band, which were available only to stations authorized in the 12,200–12,700 MHz band as of September 9, 1983, are not available for new facilities.

(23) Frequencies in these bands are for the exclusive use of Common Carrier Fixed Point-to-Point Microwave Service (part 101).

(24) Frequencies in these bands are available for assignment to television pickup and television non-broadcast pickup stations. The maximum power for the local television transmission service in the 14.2–14.4 GHz band is +45 dBW except that operations are not permitted within 1.5 degrees of the geostationary orbit. Beginning March 1, 2005, no new LTTS operators will be licensed and no existing LTTS licenses shall be issued in the 11.7–12.2 and 14.2–14.4 GHz bands.

(25) Frequencies in these bands are available for assignment to television STL stations.

(26) Frequencies from 21.8–22.0 GHz and 23.0–23.2 GHz may be authorized for low power, limited coverage systems subject to the provisions of paragraph (s)(8) of this section.

(27) Frequencies in the 932 to 932.5 MHz and 941 to 941.5 MHz bands are shared with Government fixed point-to-multipoint stations. Frequencies in these bands are paired with one another and are available for flexible use for transmission of the licensee's products and information services, excluding video entertainment material. 932.00625/941.00625 MHz to 932.24375/941.24375 MHz is licensed by Economic Area. 932.25625/941.25625 MHz to 932.49375/941.49375 MHz is licensed on a site-by-site basis.

(28) Licensees that obtain authorizations in the 928/952/956 MHz MAS bands subsequent to July 1, 1999 are limited to private internal services, as defined in §101.1305. Incumbent operations in the 928/952/956 MHz MAS bands, as defined in §101.1331(a), are subject to grandfather rights pursuant to §101.1331. The 928.85–929.0 MHz and 959.85–960.0 MHz bands are licensed on a geographic area basis with no eligibility restrictions. The 928.0–928.85 MHz band paired with the 952.0–952.85 MHz band, in addition to unpaired frequencies in the 956.25–956.45 MHz band, are licensed on a site-by-site basis and used for terrestrial point-to-point and point-to-multipoint fixed and limited mobile operations. The 928.85–929.0 MHz band paired with the 959.85–960.0 MHz band is licensed by Economic Area and used for terrestrial point-to-point and point-to-multipoint fixed operations.

(29) Frequencies in this band are shared with stations in the Multipoint Distribution Service (part 21). These frequencies may be used for the transmission of the licensee's products and information services, excluding video entertainment material to the licensee's customers.

(30) The frequency band 18,580–19,300 GHz is not available for new licensees after June 8, 2000, except for low power indoor stations in the band 18,820–18,870 MHz and 19,160–19,210 MHz.

(31) This frequency band can be used for Multichannel Video Distribution and Data Service (MVDDS) shared with Direct Broadcast Satellite (DBS) Services on a co-primary non-harmful interference basis and on a co-primary basis with NGSO FSS satellite earth stations. Incumbent private operational fixed point-to-point licensees can also use these frequencies on a site by site basis.

(32) Frequencies in this band are shared with stations in the fixed-satellite service, subject to the conditions specified in footnote 15 of §25.202(a)(1) of this chapter, see 47 CFR 47 25.202(a)(1) n.16.

(33) The coordination of a new 30 megahertz link in the 6,525–6,875 MHz band should be attempted only if it cannot be accommodated in the 5,925–6,425 MHz band.

(34) In the bands 6,875–7,125 MHz and 12,700–13,150 MHz, links shall not intersect with the service areas of television pickup stations.

(b) Frequencies normally available for assignment in this service are set forth with applicable limitations in the following tables: 928–960 MHz Multiple address system (MAS) frequencies are available for the point-to-multipoint and point-to-point transmission of a licensee's products or services, excluding video entertainment material, to a licensee's customer or for its own internal communications. The paired frequencies listed in this section are used for two-way communications between a master station and remote stations. Ancillary one-way communications on paired frequencies are permitted on a case-by-case basis. Ancillary communications between interrelated master stations are permitted on a secondary basis. The normal channel bandwidth assigned will be 12.5 kHz. EA licensees, however, may combine contiguous channels without limit or justification. Site-based licensees may combine contiguous channels up to 50 kHz, and more than 50 kHz only upon a showing

of adequate justification. Any bandwidth (12.5 kHz, 25 kHz or greater) authorized in accordance with this section may be subdivided into narrower bandwidths to create additional (or sub) frequencies without the need to specify each discrete frequency within the specific bandwidth. Equipment that is used to create additional frequencies by narrowing bandwidth (whether authorized for a 12.5 kHz, 25 kHz or greater bandwidth) will be required to meet, at a minimum, the ±0.00015 percent tolerance requirement so that all subfrequencies will be within the emission mask. Systems licensed for frequencies in these MAS bands prior to August 1, 1975, may continue to operate as authorized until June 11, 1996, at which time they must comply with current MAS operations based on the 12.5 kHz channelization set forth in this paragraph. Systems licensed between August 1, 1975, and January 1, 1981, inclusive, are required to comply with the grandfathered 25 kHz standard bandwidth and channelization requirements set forth in this paragraph. Systems originally licensed after January 1, 1981, and on or before May 11, 1988, with bandwidths of 25 kHz and above, will be grandfathered indefinitely.

NOTE TO PARAGRAPH (b) INTRODUCTORY TEXT: Paragraphs (b)(1) through (b)(5) and Tables 1 through 7 of this section pertain to Multiple Address System (MAS) frequencies and paragraph (b)(6) and Tables 8 through 11 of this section pertain to Point-To-Point frequencies.

(1) Frequencies listed in this paragraph are designated for private internal use and are subject to site-based licensing.

TABLE 1—PAIRED FREQUENCIES (MHZ)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.00625	952.00625
928.01875	952.01875
928.03125	952.03125
928.04375	952.04375
928.05625	952.05625
928.06875	952.06875
928.08125	952.08125
928.09375	952.09375
928.10625	952.10625
928.11875	952.11875
928.13125	952.13125
928.14375	952.14375
928.15625	952.15625

TABLE 1—PAIRED FREQUENCIES (MHZ)—Continued

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.16875	952.16875
928.18125	952.18125
928.19375	952.19375
928.20625	952.20625
928.21875	952.21875
928.23125	952.23125
928.24375	952.24375
928.25625	952.25625
928.26875	952.26875
928.28125	952.28125
928.29375	952.29375
928.30625	952.30625
928.31875	952.31875
928.33125	952.33125
928.34375	952.34375

UNPAIRED FREQUENCIES (MHZ)

[12.5 kHz bandwidth]

956.25625	956.33125	956.39375
956.26875	956.34375	956.40625
956.28125	956.35625	956.41875
956.29375	956.36875	956.43125
956.30625	956.38125	956.44375
956.31875		

TABLE 2—PAIRED FREQUENCIES (MHZ)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.0125	952.0125
928.0375	952.0375
928.0625	952.0625
928.0875	952.0875
928.1125	952.1125
928.1375	952.1375
928.1625	952.1625
928.1875	952.1875
928.2125	952.2125
928.2375	952.2375
928.2625	952.2625
928.2875	952.2875
928.3125	952.3125
928.3375	952.3375

UNPAIRED FREQUENCIES (MHZ)

[25 kHz bandwidth]

956.2625	956.3375	956.4125
956.2875	956.3625	956.4375
956.3125	956.3875	

(2) Frequencies listed in this paragraph are designated for private internal use and are subject to site-based licensing.

TABLE 3—PAIRED FREQUENCIES (MHZ)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.35625	952.35625
928.36875	952.36872
928.38125	952.38125
928.39375	952.39375
928.40625	952.40625
928.41875	952.41875
928.43125	952.43125
928.44375	952.44375
928.45625	952.45625
928.46875	952.46875
928.48125	952.48125
928.49375	952.49375
928.50625	952.50625
928.51875	952.51875
928.53125	952.53125
928.54375	952.54375
928.55625	952.55625
928.56875	952.56875
928.58125	952.58125
928.59375	952.59375
928.60625	952.60625
928.61875	952.61875
928.63125	952.63125
928.64375	952.64375
928.65625	952.65625
928.66875	952.66875
928.68125	952.68125
928.69375	952.69375
928.70625	952.70625
928.71875	952.71875
928.73125	952.73125
928.74375	952.74375
928.75625	952.75625
928.76875	952.76875
928.78125	952.78125
928.79375	952.79375
928.80625	952.80625
928.81875	952.81875
928.83125	952.83125
928.84375	952.84375

TABLE 4—PAIRED FREQUENCIES (MHZ)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.3625	952.3625
928.3875	952.3875
928.4125	952.4125
928.4375	952.4375
928.4625	952.4625
928.4875	952.4875
928.5125	952.5125
928.5375	952.5375
928.5625	952.5625
928.5875	952.5875
928.6125	952.6125
928.6375	952.6375
928.6625	952.6625
928.6875	952.6875
928.7125	952.7125
928.7375	952.7375
928.7625	952.7625
928.7875	952.7875
928.8125	952.8125
928.8375	952.8375

(3) Frequencies listed in this paragraph are not restricted to private internal use and are licensed by geographic area. Incumbent facilities must be protected.

TABLE 5—PAIRED FREQUENCIES (MHZ)

[12.5 kHz bandwidth]

Remote transmit	Master transmit
928.85625	959.85625
928.86875	959.86875
928.88125	959.88125
928.89375	959.89375
928.90625	959.90625
928.91875	959.91875
928.93125	959.93125
928.94375	959.94375
928.95625	959.95625
928.96875	959.96875
928.98125	959.98125
928.99375	959.99375

TABLE 6—PAIRED FREQUENCIES (MHZ)

[25 kHz bandwidth]

Remote transmit	Master transmit
928.8625	959.8625
928.8875	959.8875
928.9125	959.9125
928.9375	959.9375
928.9625	959.9625
928.9875	959.9875

(4) Frequencies listed in this paragraph are licensed by either economic area or on a site-by-site basis.

TABLE 7—PAIRED FREQUENCIES

Remote transmit	Master transmit
Licensed by Economic Area	
(12.5 kHz bandwidth):	
932.00625	941.00625
932.01875	941.01875
932.03125	941.03125
932.04375	941.04375
932.05625	941.05625
932.06875	941.06875
932.08125	941.08125
932.09375	941.09375
(50 kHz bandwidth):	
932.12500	941.12500
(12.5 kHz bandwidth):	
932.15625	941.15625
932.16875	941.16875
932.18125	941.18125
932.19375	941.19375
932.20625	941.20625
932.21875	941.21875
932.23125	941.23125
932.24375	941.24375
Reserved for public safety and private internal use. Licensed on site-by-site basis.	
(12.5 kHz bandwidth):	
932.25625	941.25625

TABLE 7—PAIRED FREQUENCIES—Continued

Remote transmit	Master transmit
932.26875	941.26875
932.28125	941.28125
932.29375	941.29375
932.30625	941.30625
932.31875	941.31875
932.33125	941.33125
932.34375	941.34375
932.35625	941.35625
932.36875	941.36875
932.38125	941.38125
932.39375	941.39375
932.40625	941.40625
932.41875	941.41875
932.43125	941.43125
Reserved for Public Safety and Federal Government Use. Licensed on site-by-site basis.	
(12.5 kHz bandwidth):	
932.44375	941.44375
932.45625	941.45625
932.46875	941.46875
932.48125	941.48125
932.49375	941.49375

(5) Equivalent power and antenna heights for multiple address master stations:

Antenna height (AAT) in meters	Maximum effective radiated power	
	Watts	dBm
Above 305	200	53
Above 274 to 305	250	54
Above 244 to 274	315	55
Above 213 to 244	400	56
Above 182 to 213	500	57
Above 152.5 to 182	630	58
152.5 and below	1,000	60

For mobile operations the maximum ERP is 25 watts (44 dBm).

(6) Fixed point-to-point frequencies.

TABLE 8—PAIRED FREQUENCIES

[All frequencies may be used by Common Carrier Fixed Point-to-Point and Private Operational Fixed Point-to-Point Microwave Service licensees; 25 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.5125	941.5125
932.5375	941.5375
932.5625	941.5625
932.5875	941.5875
932.6125	941.6125
932.6375	941.6375
932.6625	941.6625
934.8375	943.8375
934.8625	943.8625
934.8875	943.8875
934.9125	943.9125
934.9375	943.9375
934.9625	943.9625
934.9875	943.9875

TABLE 9—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave Service licensees, unless otherwise noted; 50 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.70 [1]	[1] 941.70
932.75 [1]	[1] 941.75
934.80 [1]	[1] 943.80
956.65	953.05
956.75	953.15
956.85	953.25
956.95	953.35
957.05	953.45
957.25	953.65
957.35	953.75
957.45	953.85
957.65	954.05
957.75	954.15
957.85	954.25
958.05	954.45
958.15	954.55
958.25	954.65
958.45	954.85
958.55	954.95
958.65	955.05
958.85	955.25
958.95	955.35
959.05	955.45
959.25	955.65
959.35	955.75
959.45	955.85
959.55	955.95
959.65	956.05

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

TABLE 10—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; 100 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
932.8250 [1]	[1] 941.8250
932.9250 [1]	[1] 941.9250
933.0250 [1]	[1] 942.0250
934.5250 [1]	[1] 943.5250
934.6250 [1]	[1] 943.6250
934.7250 [1]	[1] 943.7250
956.6	953.0
956.7	953.1
956.8	953.2
956.9	953.3
957.0	953.4
957.1	953.5
957.2	953.6
957.3	953.7
957.4	953.8
957.5	953.9
957.6	954.0
957.7	954.1
957.8	954.2
957.9	954.3
958.0	954.4
958.1	954.5
958.2	954.6
958.3	954.7
958.4	954.8
958.5	954.9
958.6	955.0

TABLE 10—PAIRED FREQUENCIES—Continued

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; 100 kHz bandwidth]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
958.7	955.1
958.8	955.2
958.9	955.3
959.0	955.4
959.1	955.5
959.2	955.6
959.3	955.7
959.4	955.8
959.5	955.9
959.6	956.0
959.7	956.1

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

TABLE 11—PAIRED FREQUENCIES

[Frequencies may be used only by Private Operational Fixed Point-to-Point Microwave licensees, unless otherwise noted; (200 kHz bandwidth)]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
933.1750 [1]	[1] 942.1750
933.3750 [1]	[1] 942.3750
933.5750 [1]	[1] 942.5750
933.7750 [1]	[1] 942.7750
933.9750 [1]	[1] 942.9750
934.1750 [1]	[1] 943.1750
934.3750 [1]	[1] 943.3750
957.15	953.55
957.55	953.95
957.95	954.35
958.35	954.75
958.75	955.15
959.15	955.55

[1] These frequencies also may be used by Common Carrier Fixed Point-to-Point Microwave licensees.

(c) *1850–1990 MHz*. (1) 10 MHz maximum bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1855	1935
1865	1945
1875	1955
1885	1965
1895	1975
1905	1985

UNPAIRED FREQUENCIES

1915 [1]
1925 [1]

[1] Available for systems employing one-way transmission.

(2) 5 MHz maximum bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1860	1940
1870	1950
1880	1960
1890	1970
1900	1980

(d) *2130–2150 MHz; 2180–2200 MHz*. 800 kHz maximum bandwidth, unless noted.

PAIRED FREQUENCIES

2130–2150	2180–2200
Transmit (receive) (MHz)	Receive (transmit) (MHz)
2130.8	2180.8
2131.6	[1] 2181.6
2132.4	2182.4
2133.2	[1] 2183.2
2134.0	2184.0
2134.8	[1] 2184.8
2135.6	2185.6
2136.4	[1] 2186.4
2137.2	2187.2
2138.0	[1] 2188.0
2139.6	[1] 2189.6
2138.8	2188.8
2140.4	2190.4
2141.2	[1] 2191.2
2142.0	2192.0
2142.8	[1] 2192.8
2143.6	2193.6
2144.4	[1] 2194.4
2145.2	2195.2
2146.0	[1] 2196.0
2146.8	2196.8
2147.6	[1] 2197.6
2148.4	2198.4
2149.2	2199.2

[1] Consideration will be given on a case-by-case basis to assigning these frequency pairs to systems employing 1600 KHz bandwidth transmissions.

(e) [Reserved]

(f) *2450–2500 MHz*. (1) This band is shared with other communications services and is not subject to protection from interference from industrial, scientific, and medical devices operating on 2450 MHz.

(2) Stations licensed in this band under this part prior to March 1, 1996, are grandfathered and may continue their authorized operations. Stations licensed in the 2483.5–2500 MHz portion of the band as of July 25, 1985, and licensees whose initial applications were filed on or before July 25, 1985, are grandfathered, and may continue operations, subject only to license renewal, on a co-primary basis with with the

mobile-satellite and radiodetermination-satellite services, and in the segment 2495–2500 MHz, their operations are also on a co-primary basis with part 27 fixed and mobile except aeronautical mobile service operations.

(3) 625 KHz bandwidth channels. The normal bandwidth authorized will be 625 KHz. Upon adequate justification, additional contiguous channels may be authorized to provide up to a 2500 KHz bandwidth.

PAIRED FREQUENCIES

Transmit (receive) (MHz)	Receive (transmit) (MHz)
2450.3125	2467.5625
2450.9375	2468.1875
2451.5625	2468.8125
2452.1875	2469.4375
2452.8125	2470.0625
2453.4375	2470.6875
2454.0625	2471.3125
2454.6875	2471.9375
2455.3125	2472.5625
2455.9375	2473.1875
2456.5625	2473.8125
2457.1875	2474.4375
2457.8125	2475.0625
2458.4375	2475.6875
2459.0625	2476.3125
2459.6875	2476.9375
2460.3125	2477.5625
2460.9375	2478.1875
2461.5625	2478.8125
2462.1875	2479.4375
2462.8125	2480.0625
2463.4375	2480.6875
2464.0625	2481.3125
2464.6875	2481.9375
2465.3125	2482.5625
2465.9375	2483.1875

(g) [Reserved]

(h) *3,700 to 4,200 MHz*. 20 MHz maximum authorized bandwidth.

20 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
3710	3750
3730	3770
3790	3830
3810	3850
3870	3910
3890	3930
3950	3990
3970	4010
4030	4070
4050	4090
4110	4150
4130	4170
N/A	[1] 4190

[1] This frequency may be assigned for unpaired use.

(i) *5,925 to 6,425 MHz*. 60 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.225	6177.100
5925.625	6177.500
5926.050	6177.925
5926.450	6178.325
5926.875	6178.750
5927.275	6179.150
5927.725	6179.600
5928.125	6180.000
5928.550	6180.425
5928.950	6180.825
5929.375	6181.250
5929.775	6181.650
6168.350	6420.225
6168.750	6420.625
6169.175	6421.050
6169.575	6421.450
6170.000	6421.875
6170.400	6422.275
6170.850	6422.725
6171.250	6423.125
6171.675	6423.550
6172.075	6423.950
6172.500	6424.375
6172.900	6424.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.425	6177.300
5926.250	6178.125
5927.075	6178.950
5927.925	6179.800
5928.750	6180.625
5929.575	6181.450
6168.550	6420.425
6169.375	6421.250
6170.200	6422.075
6171.050	6422.925
6171.875	6423.750
6172.700	6424.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5925.625	6177.500
5926.875	6178.750
5928.125	6180.000
5929.375	6181.250
6108.893	6360.933
6110.128	6362.168
6111.364	6363.404
6112.599	6364.639
6113.834	6365.874
6115.070	6367.110
6116.305	6368.345
6117.541	6369.581
6118.776	6370.816
6120.011	6372.051
6121.247	6373.287
6122.482	6374.522
6123.718	6375.758
6124.953	6376.993
6126.189	6378.229
6127.424	6379.464

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6128.659	6380.699
6129.895	6381.935
6131.130	6383.170
6132.366	6384.406
6133.601	6385.641
6134.836	6386.876
6136.072	6388.112
6137.307	6389.347
6138.543	6390.583
6139.778	6391.818
6141.014	6393.054
6142.249	6394.289
6143.484	6395.524
6144.720	6396.760
6145.955	6397.995
6147.191	6399.231
6148.426	6400.466
6149.661	6401.701
6150.897	6402.937
6152.132	6404.172
6153.368	6405.408
6154.603	6406.643
6155.839	6407.879
6157.074	6409.114
6158.309	6410.349
6159.545	6411.585
6160.780	6412.820
6162.016	6414.056
6163.251	6415.291
6164.486	6416.526
6165.722	6417.762
6166.957	6418.997
6168.750	6420.625
6170.000	6421.875
6171.250	6423.125
6172.500	6424.375
6173.750 [1]	N/A
6175.000 [1]	N/A
6176.250 [1]	N/A

[1] These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5926.250	6178.125
5928.750	6180.625
6109.510	6361.550
6111.981	6364.021
6114.452	6366.492
6116.923	6368.963
6119.394	6371.434
6121.865	6373.905
6124.335	6376.375
6126.806	6378.846
6129.277	6381.317
6131.748	6383.788
6134.219	6386.259
6136.690	6388.730
6139.160	6391.200
6141.631	6393.671
6144.102	6396.142
6146.573	6398.613
6149.044	6401.084
6151.515	6403.555
6153.985	6406.025
6156.456	6408.496
6158.927	6410.967
6161.398	6413.438
6163.869	6415.909
6166.340	6418.380
6169.375	6421.250
6171.875	6423.750
6175.625 [1]	N/A

[1] This frequency may be assigned for unpaired use.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6111.364	6363.404
6116.305	6368.345
6121.247	6373.287
6126.189	6378.229
6131.130	6383.170
6136.072	6388.112
6141.014	6393.054
6145.955	6397.995
6150.897	6402.937
6155.839	6407.879
6160.780	6412.820
6165.722	6417.762
6175.000 [1]	N/A

[1] This frequency may be assigned for unpaired use.

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6110.75	6362.79
6115.69	6367.73
6120.63	6372.67
6125.57	6377.61
6130.51	6382.55
6135.45	6387.49
6140.40	6392.44
6145.34	6397.38
6150.28	6402.32
6155.22	6407.26
6160.16	6412.20
6165.10	6417.14

(7) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5935.32	6187.36
5945.20	6197.24
5955.08	6207.12
5964.97	6217.01
5974.85	6226.89
5984.73	6236.77
5994.62	6246.66
6004.50	6256.54
6014.38	6266.42
6024.27	6276.31
6034.15	6286.19
6044.03	6296.07
6053.92	6305.96
6063.80	6315.84
6073.68	6325.72
6083.57	6335.61
6093.45	6345.49
6103.33	6355.37
6113.22 [1]	[1] 6365.26
6123.10 [1]	[1] 6375.14

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6132.98 [1]	[1] 6385.02
6142.87 [1]	[1] 6394.91
6152.75 [1]	[1] 6404.79
6162.63 [1]	[1] 6414.67

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5945.20	6197.24
5974.85	6226.89
6004.50	6256.54
6034.15	6286.19
6063.80	6315.84
6093.45	6345.49
6123.10 [1]	[1] 6375.14
6152.75 [1]	[1] 6404.79

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(9) 60 MHz bandwidth channels: [1]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
5960.025	6212.065
6019.325	6271.365
6078.625	6330.665
6137.925	6389.965

(j) *6,425 to 6,525 MHz: Mobile.* Paired and un-paired operations permitted. Use of this spectrum for direct delivery of video programs to the general public or multi-channel cable distribution is not permitted. This band is co-equally shared with mobile stations licensed pursuant to parts 74 and 78 of the Commission's Rules. Stations not intended to be operated while in motion will be licensed under the provision of § 101.31. The following channel plans apply.

(1) 1 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6425.5	6475.5
6450.5	6500.5

(2) 8 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6430.0	6480.0
6438.0	6488.0
6446.0	6596.0
6455.0	6505.0
6463.0	6513.0
6471.0	6521.0

(3) 25 MHz maximum authorized bandwidth channels:

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6437.5	6487.5
6462.5	6512.5

(k) *6,525 to 6,875 MHz.* 10 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.225	6870.225
6525.625	6870.625
6526.050	6871.050
6526.450	6871.450
6526.875	6871.875
6527.275	6872.275
6527.725	6872.725
6528.125	6873.125
6528.550	6873.550
6528.950	6873.950
6529.375	6874.375
6529.775	6874.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.425	6870.425
6526.250	6871.250
6527.075	6872.075
6527.925	6872.925
6528.750	6873.750
6529.575	6874.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6525.625	6870.625
6526.875	6871.875
6528.125	6873.125
6529.375	6874.375
6540.625 [1]	[1] 6718.125
6541.875 [1]	[1] 6719.375
6543.125 [1]	[1] 6713.125
6544.375 [1]	[1] 6714.375
6545.625 [1]	[1] 6715.625
6546.875 [1]	[1] 6716.875
6548.125	6728.125
6549.375	6729.375
6550.625	6730.625
6551.875	6731.875
6553.125 [1]	[1] 6723.125
6554.375 [1]	[1] 6724.375

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6555.625 [1]	[1] 6725.625
6556.875 [1]	[1] 6726.875
6558.125	6738.125
6559.375	6739.375
6560.625	6740.625
6561.875	6741.875
6563.125	6733.125
6564.375	6734.375
6565.625	6735.625
6566.875	6736.875
6568.125 [1]	[1] 6720.625
6569.375 [1]	[1] 6721.875
6580.625 [1]	[1] 6868.125
6581.875 [1]	[1] 6869.375
6583.125	6743.125
6584.375	6744.375
6585.625	6745.625
6586.875	6746.875
6588.125	6748.125
6589.375	6749.375
6590.625	6750.625
6591.875	6751.875
6593.125	6753.125
6594.375	6754.375
6595.625	6755.625
6596.875	6756.875
6598.125	6758.125
6599.375	6759.375
6600.625	6760.625
6601.875	6761.875
6603.125	6763.125
6604.375	6764.375
6605.625	6765.625
6606.875	6766.875
6608.125	6768.125
6609.375	6769.375
6610.625	6770.625
6611.875	6771.875
6613.125	6773.125
6614.375	6774.375
6615.625	6775.625
6616.875	6776.875
6618.125	6778.125
6619.375	6779.375
6620.625	6780.625
6621.875	6781.875
6623.125	6783.125
6624.375	6784.375
6625.625	6785.625
6626.875	6786.875
6628.125	6788.125
6629.375	6789.375
6630.625	6790.625
6631.875	6791.875
6633.125	6793.125
6634.375	6794.375
6635.625	6795.625
6636.875	6796.875
6638.125	6798.125
6639.375	6799.375
6640.625	6800.625
6641.875	6801.875
6643.125	6803.125
6644.375	6804.375
6645.625	6805.625
6646.875	6806.875
6648.125	6808.125
6649.375	6809.375
6650.625	6810.625
6651.875	6811.875
6653.125	6813.125
6654.375	6814.375
6655.625	6815.625
6656.875	6816.875
6658.125	6818.125
6659.375	6819.375
6660.625	6820.625
6661.875	6821.875
6663.125	6823.125
6664.375	6824.375
6665.625	6825.625
6666.875	6826.875
6668.125	6828.125
6669.375	6829.375
6670.625	6830.625
6671.875	6831.875
6673.125	6833.125
6674.375	6834.375
6675.625	6835.625
6676.875	6836.875
6678.125	6838.125
6679.375	6839.375
6680.625	6840.625
6681.875	6841.875
6683.125	6843.125
6684.375	6844.375
6685.625	6845.625
6686.875	6846.875
6688.125	6848.125
6689.375	6849.375
6690.625	6850.625
6691.875	6851.875
6693.125	6853.125
6694.375	6854.375
6695.625	6855.625
6696.875	6856.875
6698.125	6858.125
6699.375	6859.375
6700.625	6860.625
6701.875	6861.875
6703.125	6863.125
6704.375	6864.375
6705.625	6865.625
6706.875	6866.875
6708.125 [1]	[1] 6710.625
6709.375 [1]	[1] 6711.875

[1] These frequencies may be assigned for unpaired use.

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6526.25	6871.25
6528.75	6873.75
6541.25 [1]	[1] 6718.75
6543.75 [1]	[1] 6713.75
6546.25 [1]	[1] 6716.25
6548.75	6728.75
6551.25	6731.25
6553.75 [1]	[1] 6723.75
6556.25 [1]	[1] 6726.25
6558.75	6738.75
6561.25	6741.25
6563.75	6733.75
6566.25	6736.25
6568.75 [1]	[1] 6721.25
6581.25 [1]	[1] 6868.75
6583.75	6743.75
6586.25	6746.25
6588.75	6748.75
6591.25	6751.25
6593.75	6753.75

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6596.25	6756.25
6598.75	6758.75
6601.25	6761.25
6603.75	6763.75
6606.25	6766.25
6608.75	6768.75
6611.25	6771.25
6613.75	6773.75
6616.25	6776.25
6618.75	6778.75
6621.25	6781.25
6623.75	6783.75
6626.25	6786.25
6628.75	6788.75
6631.25	6791.25
6633.75	6793.75
6636.25	6796.25
6638.75	6798.75
6641.25	6801.25
6643.75	6803.75
6646.25	6806.25
6648.75	6808.75
6651.25	6811.25
6653.75	6813.75
6656.25	6816.25
6658.75	6818.75
6661.25	6821.25
6663.75	6823.75
6666.25	6826.25
6668.75	6828.75
6671.25	6831.25
6673.75	6833.75
6676.25	6836.25
6678.75	6838.75
6681.25	6841.25
6683.75	6843.75
6686.25	6846.25
6688.75	6848.75
6691.25	6851.25
6693.75	6853.75
6696.25	6856.25
6698.75	6858.75
6701.25	6861.25
6703.75	6863.75
6706.25	6866.25
6708.75 [1]	[1] 6711.25

[1] These frequencies may be assigned for unpaired use.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545.625 [1]	6715.625 [1]
6550.625	6730.625
6555.625 [1]	6725.625 [1]
6560.625	6740.625
6565.625	6735.625
6585.625	6745.625
6590.625	6750.625
6595.625	6755.625
6600.625	6760.625
6605.625	6765.625
6610.625	6770.625
6615.625	6775.625
6620.625	6780.625
6625.625	6785.625
6630.625	6790.625
6635.625	6795.625
6640.625	6800.625
6645.625	6805.625
6650.625	6810.625
6655.625	6815.625
6660.625	6820.625
6665.625	6825.625
6670.625	6830.625
6675.625	6835.625
6680.625	6840.625
6685.625	6845.625
6690.625	6850.625
6695.625	6855.625
6700.625	6860.625
6705.625	6865.625
6710.625 [1]	[1] 6720.625

[1] These frequencies may be assigned for unpaired use.

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545 [1]	[1] 6715
6550	6730
6555 [1]	[1] 6725
6560	6740
6565	6735
6585	6745
6590	6750
6595	6755
6600	6760
6605	6765
6610	6770
6615	6775
6620	6780
6625	6785
6630	6790
6635	6795
6640	6800
6645	6805
6650	6810
6655	6815
6660	6820
6665	6825
6670	6830
6675	6835
6680	6840
6685	6845
6690	6850
6695	6855
6700	6860
6705	6865
6710 [1]	[1] 6720

[1] These frequencies may be assigned for unpaired use.

(7) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6545 [1]	[1] 6715
6555 [1]	[1] 6725
6565	6735
6585	6745
6595	6755
6605	6765
6615	6775
6625	6785
6635	6795
6645	6805
6655	6815
6665	6825

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6675	6835
6685	6845
6695	6855
6705	6865
6535[2]	[2]6575

[1] These frequencies may be assigned for unpaired use.
[2] Available only for emergency restoration, maintenance bypass, or other temporary-fixed purposes. Such uses are authorized on a non-interference basis to other frequencies in this band. Interference analysis required by § 101.105 does not apply to this frequency pair.

(8) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6555	6725
6595	6755
6625	6785
6655	6815
6685	6845

(l) *6875 to 7125 MHz*. 25 MHz authorized bandwidth.

(1) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6877.5	7027.5
6882.5	7032.5
6887.5	7037.5
6892.5	7042.5
6897.5	7047.5
6902.5	7052.5
6907.5	7057.5
6912.5	7062.5
6917.5	7067.5
6922.5	7072.5
6927.5	7077.5
6932.5	7082.5
6937.5	7087.5
6942.5	7092.5
6947.5	7097.5
6952.5	7102.5
6957.5	7107.5
6962.5	7112.5
6967.5	7117.5
6972.5	7122.5

(2) 8.33 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6879.165	7029.165
6887.495	7037.495
6895.825	7045.825
6904.155	7054.155
6912.485	7062.485
6920.815	7070.815
6929.145	7079.145
6937.475	7087.475
6945.805	7095.805
6954.135	7104.135
6962.465	7112.465
6970.795	7120.795

(3) 12.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6881.25	7031.25
6893.75	7043.75
6906.25	7056.25
6918.75	7068.75
6931.25	7081.25
6943.75	7093.75
6956.25	7106.25
6968.75	7118.75

(4) 25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
6887.5	7037.5
6912.5	7062.5
6937.5	7087.5
6962.5	7112.5

(m) *10,550 to 10,680 MHz*. 5 MHz authorized bandwidth.

(1) 400 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10605.225	10670.225
10605.625	10670.625
10606.050	10671.050
10606.450	10671.450
10606.875	10671.875
10607.275	10672.275
10607.725	10672.725
10608.125	10673.125
10608.550	10673.550
10608.950	10673.950
10609.375	10674.375
10609.775	10674.775
10610.225	10675.225
10610.625	10675.625
10611.050	10676.050
10611.450	10676.450
10611.875	10676.875
10612.275	10677.275
10612.725	10677.725
10613.125	10678.125
10613.550	10678.550
10613.950	10678.950
10614.375	10679.375
10614.775	10679.775

(2) 800 kHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10605.425	10670.425
10606.250	10671.250
10607.075	10672.075
10607.925	10672.925
10608.750	10673.750
10609.575	10674.575
10610.425	10675.425
10611.250	10676.250
10612.075	10677.075
10612.925	10677.925

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10613.750	10678.750
10614.575	10679.575

(3) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10550.625	10615.625
10551.875	10616.875
10553.125	10618.125
10554.375	10619.375
10555.625	10620.625
10556.875	10621.875
10558.125	10623.125
10559.375	10624.375
10560.625	10625.625
10561.875	10626.875
10563.125	10628.125
10564.375	10629.375
10565.625	10630.625
10566.875	10631.875
10568.125	10633.125
10569.375	10634.375
10570.625	10635.625
10571.875	10636.875
10573.125	10638.125
10574.375	10639.375
10575.625	10640.625
10576.875	10641.875
10578.125	10643.125
10579.375	10644.375
10580.625	10645.625
10581.875	10646.875
10583.125	10648.125
10584.375	10649.375
10585.625	10650.625
10586.875	10651.875
10588.125	10653.125
10589.375	10654.375
10590.625	10655.625
10591.875	10656.875
10593.125	10658.125
10594.375	10659.375
10595.625	10660.625
10596.875	10661.875
10598.125	10663.125
10599.375	10664.375
10600.625	10665.625
10601.875	10666.875
10603.125	10668.125
10604.375	10669.375
10605.625	10670.625
10606.875	10671.875
10608.125	10673.125
10609.375	10674.375
10610.625	10675.625
10611.875	10676.875
10613.125	10678.125
10614.375	10679.375

(4) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10551.25	10616.25
10553.75	10618.75
10556.25	10621.25
10558.75	10623.75
10561.25	10626.25
10563.75	10628.75
10566.25	10631.25
10568.75	10633.75
10571.25	10636.25
10573.75	10638.75
10576.25	10641.25
10578.75	10643.75
10581.25 [1]	[1] 10646.25
10583.75 [1]	[1] 10648.75
10586.25 [1]	[1] 10651.25
10588.75 [1]	[1] 10653.75
10591.25 [1]	[1] 10656.25
10593.75 [1]	[1] 10658.75
10596.25 [1]	[1] 10661.25
10598.75 [1]	[1] 10663.75
10601.25 [1]	[1] 10666.25
10603.75 [1]	[1] 10668.75
10606.25 [1]	[1] 10671.25
10608.75 [1]	[1] 10673.75
10611.25 [1]	[1] 10676.25
10613.75 [1]	[1] 10678.75

[1] These frequencies are also available for DEMS stations licensed, in operation, or applied for prior to July 15, 1993.

(5) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10553.125	10618.125
10558.125	10623.125
10563.125	10628.125
10568.125	10633.125
10573.125	10638.125
10578.125	10643.125
10583.125	10648.125
10588.125	10653.125
10593.125	10658.125
10598.125	10663.125
10603.125	10668.125

(6) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10552.5	10617.5
10557.5	10622.5
10562.5	10627.5
10567.5 [1]	[1] 10632.5
10572.5 [1]	[1] 10637.5
10577.5 [1]	[1] 10642.5
10582.5 [1]	[1] 10647.5
10587.5	10652.5
10592.5	10657.5
10597.5	10662.5
10602.5	10667.5

[1] These frequencies are also available for DEMS stations licensed, in operation, or applied for prior to July 15, 1993.

(n) Point-to-multipoint systems licensed, in operation, or applied for in the 10,550–10,680 MHz band prior to July 15, 1993, are permitted to use the DEMS frequencies noted above if they prior coordinate such usage with the necessary parties including 10 GHz point-

to-point applicants and licensees. DEMS Nodal Stations shall use the band 10,565–10,615 MHz while DEMS User Stations shall use the band 10,630–10,680 MHz.

(o) *10,700 to 11,700 MHz*. 80 MHz authorized bandwidth.

(1) 1.25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11130.625	11620.625
11131.875	11621.875
11133.125	11623.125
11134.375	11624.375
11135.625	11625.625
11136.875	11626.875
11138.125	11628.125
11139.375	11629.375
11140.625	11630.625
11141.875	11631.875
11143.125	11633.125
11144.375	11634.375
11145.625	11635.625
11146.875	11636.875
11148.125	11638.125
11149.375	11639.375
11150.625	11640.625
11151.875	11641.875
11153.125	11643.125
11154.375	11644.375
11155.625	11645.625
11156.875	11646.875
11158.125	11648.125
11159.375	11649.375
11160.625	11650.625
11161.875	11651.875
11163.125	11653.125
11164.375	11654.375
11165.625	11655.625
11166.875	11656.875
11168.125	11658.125
11169.375	11659.375
11170.625	11660.625
11171.875	11661.875
11173.125	11663.125
11174.375	11664.375
11175.625	11665.625
11176.875	11666.875
11178.125	11668.125
11179.375	11669.375
11180.625	11680.625
11181.875	11681.875
11183.125	11683.125
11184.375	11684.375
11185.625	11685.625
11186.875	11686.875
11188.125	11688.125
11189.375	11689.375
11190.625	11690.625
11191.875	11691.875
11193.125	11693.125
11194.375	11694.375
11195.625	11695.625
11196.875	11696.875
11198.125	11698.125
11199.375	11699.375

(2) 2.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11131.25	11621.25
11133.75	11623.75
11136.25	11626.25
11138.75	11628.75
11141.25	11631.25
11143.75	11633.75
11146.25	11636.25
11148.75	11638.75
11151.25	11641.25
11153.75	11643.75
11156.25	11646.25
11158.75	11648.75
11161.25	11651.25
11163.75	11653.75
11166.25	11656.25
11168.75	11658.75
11171.25	11661.25
11173.75	11663.75
11176.25	11666.25
11178.75	11668.75
11181.25	11681.25
11183.75	11683.75
11186.25	11686.25
11188.75	11688.75
11191.25	11691.25
11193.75	11693.75
11196.25	11696.25
11198.75	11698.75

(3) 3.75 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11133.125	11623.125
11138.125	11628.125
11143.125	11633.125
11148.125	11638.125
11153.125	11643.125
11158.125	11648.125
11163.125	11653.125
11168.125	11658.125
11173.125	11663.125
11178.125	11668.125
11183.125	11683.125
11188.125	11688.125
11193.125	11693.125
11198.125	11698.125

(4) 5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
11132.5	11622.5
11137.5	11627.5
11142.5	11632.5
11147.5	11637.5
11152.5	11642.5
11157.5	11647.5
11162.5	11652.5
11167.5	11657.5
11172.5	11662.5
11177.5	11667.5
11182.5	11682.5
11187.5	11687.5
11192.5	11692.5
11197.5	11697.5

(5) 10 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10705	11205
10715	11215
10725 [2]	[1] 11675
10735	11225
10745	11235
10755	11245
10765	11255
10775	11265
10785	11275
10795	11285
10805	11295
10815	11305
10825	11315
10835	11325
10845	11335
10855	11345
10865	11355
10875	11365
10885	11375
10895	11385
10905	11395
10915	11405
10925	11415
10935	11425
10945	11435
10955	11445
10965	11455
10975	11465
10985	11475
10995	11485
11005	11495
11015	11505
11025	11515
11035	11525
11045	11535
11055	11545
11065	11555
11075	11565
11085	11575
11095	11585
11105	11595
11115	11605
11125	11615
11135 [1]	[1] 11625
11145 [1]	[1] 11635
11155 [1]	[1] 11645
11165 [1]	[1] 11655
11175 [1]	[1] 11665
11185 [1]	[1] 11685
11195 [1]	[1] 11695

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] These frequencies may be assigned for unpaired use.

(6) 30 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10715	11215
10755	11245
10795	11285
10835	11325
10875	11365
10915	11405
10955	11445
10995	11485
11035	11525
11075	11565
11115	11605
11155 [1]	[1] 11645
11185 [1]	[1] 11685

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

(7) 40 MHz bandwidth channels: [2]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10735	11225
10775	11265
10815	11305
10855	11345
10895	11385
10935	11425
10975	11465
11015	11505
11055	11545
11095	11585
11135 [1]	[1] 11625
11175 [1]	[1] 11665

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] In congested areas where 40 MHz channels block most 30 MHz channels, radios authorized for 30 MHz bandwidths may use the 40 MHz channels. In uncongested areas, 30 MHz channels should be used.

(8) 80 MHz bandwidth channels: [1]

Transmit (receive) (MHz)	Receive (transmit) (MHz)
10755	11245
10835	11325
10915	11405
10995	11485
11075	11565
11155	11645

(p)*12,200 to 13,150 MHz*. (1) *12,000–12,700 MHz*. The Commission has allocated the 12.2–12.7 GHz band for use by the Direct Broadcast Satellite Service (DBS), the Multichannel Video Distribution and Data Service (MVDDS), and the Non-Geostationary Satellite Orbit Fixed Satellite Service (NGSO FSS). MVDDS shall be licensed on a non-harmful interference co-primary basis to existing DBS operations and on a co-primary basis with NGSO FSS stations in this band. MVDDS use can be on a common carrier and/or non-common carrier basis and can use channels of any desired bandwidth up to the maximum of 500 MHz provided the EIRP does not exceed 14 dBm per 24 megahertz. Private operational fixed point-to-point microwave stations authorized after September 9, 1983, are licensed on a non-harmful interference basis to DBS and are required to make

any and all adjustments necessary to prevent harmful interference to operating domestic DBS receivers. Incumbent public safety licensees shall be afforded protection from MVDDS and NGSO FSS licensees, however all other private operational fixed licensees shall be secondary to DBS, MVDDS and NGSO FSS licensees. As of May 23, 2002, the Commission no longer accepts applications for new licenses for point-to-point private operational fixed stations in this band, however, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in §1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license. Notwithstanding any other provisions, no private operational fixed point-to-point microwave stations are permitted to cause harmful interference to broadcasting-satellite stations of other countries operating in accordance with the Region 2 plan for the Broadcasting-Satellite Service established at the 1983 WARC.

(2) *12,700 to 13,150 MHz*. 50 MHz authorized bandwidth.

(i) 5 MHz channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12702.5	12927.5
12707.5	12932.5
12712.5	12937.5
12717.5	12942.5
12722.5	12947.5
12727.5	12952.5
12732.5	12957.5
12737.5	12962.5
12742.5	12967.5
12747.5	12972.5
12752.5	12977.5
12757.5	12982.5
12762.5	12987.5
12767.5	12992.5
12772.5	12997.5
12777.5	13002.5
12782.5	13007.5
12787.5	13012.5
12792.5	13017.5
12797.5	13022.5
12802.5	13027.5
12807.5	13032.5
12812.5	13037.5
12817.5	13042.5
12822.5	13047.5
12827.5	13052.5
12832.5	13057.5
12837.5	13062.5
12842.5	13067.5
12847.5	13072.5
12852.5	13077.5
12857.5	13082.5
12862.5	13087.5
12867.5	13092.5
12872.5	13097.5
12877.5	13102.5
12882.5	13107.5
12887.5	13112.5
12892.5	13117.5
12897.5	13122.5
12902.5	13127.5
12907.5	13132.5
12912.5	13137.5
12917.5	13142.5
12922.5	13147.5

(ii) 8.33 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12704.165	12929.165
12712.495	12937.495
12720.825	12945.825
12729.155	12954.155
12737.485	12962.485
12745.815	12970.815
12754.145	12979.145
12762.475	12987.475
12770.805	12995.805
12779.135	13004.135
12787.465	13012.465
12795.795	13020.795
12804.125	13029.125
12812.455	13037.455
12820.785	13045.785
12829.115	13054.115
12837.445	13062.445
12845.775	13070.775
12854.105	13079.105
12862.435	13087.435
12870.765	13095.765
12879.095	13104.095
12887.425	13112.425
12895.755	13120.755
12904.085	13129.085
12912.415	13137.415

(iii) 12.5 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12706.25	12931.25
12718.75	12943.75
12731.25	12956.25
12743.75	12968.75
12756.25	12981.25
12768.75	12993.75
12781.25	13006.25
12793.75	13018.75
12806.25	13031.25
12818.75	13043.75
12831.25	13056.25
12843.75	13068.75
12856.25	13081.25
12868.75	13093.75
12881.25	13106.25
12893.75	13118.75
12906.25	13131.25
12918.75	13143.75

(iv) 25 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12712.5	12937.5
12737.5	12962.5
12762.5	12987.5
12787.5	13012.5
12812.5	13037.5
12837.5	13062.5
12862.5	13087.5
12887.5	13112.5
12912.5	13137.5

(v) 50 MHz bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
12725	12950
12775	13000
12825	13050
12875	13100

(q) Special provisions for incumbent low power, limited coverage systems in the band segments 12.2–12.7 GHz.

(1) As of May 23, 2002, the Commission no longer accepts applications for new stations in this service and incumbent stations may remain in service provided they do not cause harmful interference to any other primary services licensed in this band as described in paragraph (p) of this section. However, incumbent licensees and previously filed applicants may file applications for minor modifications and amendments (as defined in §1.929 of this chapter) thereto, renewals, transfer of control, or assignment of license.

(2) Prior to December 8, 2000, notwithstanding any contrary provisions in this part, the frequency pairs 12.220/12.460 GHz, 12.260/12.500 GHz, 12.300/12.540 GHz and 12.340/12.580 GHz, were authorized for low power, limited coverage systems subject to the following provisions:

(i) Maximum equivalent isotropically radiated power (EIRP) shall be 55 dBm;

(ii) The rated transmitter output power shall not exceed 0.5 watts;

(iii) Frequency tolerance shall be maintained to within 0.01 percent of the assigned frequency;

(iv) Maximum beamwidth shall not exceed 4 degrees. However, the sidelobe suppression criteria contained in §101.115 shall not apply, except that a minimum front-to-back ratio of 38 dB shall apply;

(v) Upon showing of need, a maximum bandwidth of 12 MHz may be authorized per frequency assigned;

(vi) Radio systems authorized under the provisions of this section shall have no more than three hops in tandem, except upon showing of need, but in any event the maximum tandem length shall not exceed 40 km (25 miles);

(vii) Interfering signals at the receiver antenna terminals of stations authorized under this section shall not exceed –90 dBm and –70 dBm respectively, for co-channel and adjacent channel interfering signals, and

(viii) Stations authorized under the provisions of this section shall provide the protection from interference specified in §101.105 to stations operating in accordance with the provisions of this part.

(r) *17,700 to 19,700 and 24,250 to 25,250 MHz:* Operation of stations using frequencies in these bands is permitted to the extent specified in this paragraph. Until November 19, 2012, stations operating in the band 18.3–18.58 GHz that were licensed or had applications pending before the Commission as of November 19, 2002 shall operate on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. Until October 31, 2011, operations in the band 19.26–19.3 GHz and low power systems operating pursuant to paragraph (r)(10) of this section shall operate on a co-primary basis. Until June 8, 2010, stations operating in the band 18.58–18.8 GHz that were licensed or had applications pending before the Commission as of June 8, 2000 may continue those operations on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. Until June 8, 2010, stations operating in the band 18.8–19.3 GHz that were licensed or had applications pending before the Commission as of September 18, 1998 may continue those operations on a shared co-primary basis with other services under parts 21, 25, 74, and 78 of this chapter. After November 19, 2012, stations operating in the band 18.3–18.58 GHz are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. After June

8, 2010, operations in the 18.58–19.30 GHz band are not entitled to protection from fixed-satellite service operations and must not cause unacceptable interference to fixed-satellite service station operations. After November 19, 2002, no applications for new stations for 47 CFR part 101 licenses will be accepted in the 18.3–18.58 GHz band. After June 8, 2000, no applications for new stations for 47 CFR part 101 licenses will be accepted in the 18.58–19.3 GHz band. Licensees, except 24 GHz band licensees, may use either a two-way link or one frequency of a frequency pair for a one-way link and must coordinate proposed operations pursuant to the procedures required in § 101.103 of this subpart. (Note, however, that stations authorized as of September 9, 1983, to use frequencies in the band 17.7–19.7 GHz may, upon proper application, continue to be authorized for such operations, consistent with the above conditions related to the 18.58–19.3 GHz band.) Applicants for one-way spectrum from 17.7–18.58 GHz for multichannel video programming distribution are governed by paragraph (r)(6) of this section. Licensees are also allowed to use one-way (unpaired) channels in the 17.7–17.74 GHz sub-band to pair with other channels in the FS portions of the 18 GHz band where, for example, the return pair is already in use and therefore blocked or in TDD systems. Stations used for MVPD operations in the 17.7–17.8 GHz band must coordinate with the Federal Government before operating in the zones specified in § 1.924(e) of this chapter.

(1) 1.25 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
17700.625	NA
17701.875	NA
17703.125	NA
17704.375	NA
17705.625	NA
17706.875	NA
17708.125	NA
17709.375	NA
17710.625	NA
17711.875	NA
17713.125	NA
17714.375	NA
17715.625	NA
17716.875	NA
17718.125	NA
17719.375	NA
17721.625	NA
17722.875	NA
17723.125	NA
17724.375	NA
17725.625	NA
17726.875	NA
17728.125	NA
17729.375	NA
17730.625	NA
17731.875	NA
17733.125	NA
17734.375	NA
17735.625	NA
17736.875	NA
17738.125	NA
17739.375	NA
18060.625	19620.625
18061.875	19621.875
18063.125	19623.125
18064.375	19624.375
18065.625	19625.625
18066.875	19626.875
18068.125	19628.125
18069.375	19629.375
18070.625	19630.625
18071.875	19631.875
18073.125	19633.125
18074.375	19634.375
18075.625	19635.625
18076.875	19636.875
18078.125	19638.125
18079.375	19639.375
18080.625	19640.625
18081.875	19641.875
18083.125	19643.125
18084.375	19644.375
18085.625	19645.625
18086.875	19646.875
18088.125	19648.125
18089.375	19649.375
18090.625	19650.625
18091.875	19651.875
18093.125	19653.125
18094.375	19654.375
18095.625	19655.625
18096.875	19656.875
18098.125	19658.125
18099.375	19659.375
18100.625	19660.625
18101.875	19661.875
18103.125	19663.125
18104.375	19664.375
18105.625	19665.625
18106.875	19666.875
18108.125	19668.125
18109.375	19669.375
18110.625	19670.625
18111.875	19671.875
18113.125	19673.125
18114.375	19674.375
18115.625	19675.625
18116.875	19676.875
18118.125	19678.125
18119.375	19679.375
18120.625	19680.625
18121.875	19681.875
18123.125	19683.125
18124.375	19684.375
18125.625	19685.625
18126.875	19686.875
18128.125	19688.125
18129.375	19689.375

Transmit (receive) (MHz)	Receive (transmit) (MHz)
18130.625	19690.625
18131.875	19691.875
18133.125	19693.125
18134.375	19694.375
18135.625	19695.625
18136.875	19696.875
18138.125	19698.125
18139.375	19699.375

(2) 2 Megahertz maximum authorized bandwidth channel:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
18141.0	N/A

(3) 2.5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
17701.25	N/A
17703.75	N/A
17706.25	N/A
17708.75	N/A
17711.25	N/A
17713.75	N/A
17716.25	N/A
17718.75	N/A
17721.25	N/A
17723.75	N/A
17726.25	N/A
17728.75	N/A
17731.25	N/A
17733.75	N/A
17736.25	N/A
17738.75	N/A
18061.25	19621.25
18063.75	19623.75
18066.25	19626.25
18068.75	19628.75
18071.25	19631.25
18073.75	19633.75
18076.25	19636.25
18078.75	19638.75
18081.25	19641.25
18083.75	19643.75
18086.25	19646.25
18088.75	19648.75
18091.25	19651.25
18093.75	19653.75
18096.25	19656.25
18098.75	19658.75
18101.25	19661.25
18103.75	19663.75
18106.25	19666.25
18108.75	19668.75
18111.25	19671.25
18113.75	19673.75
18116.25	19676.25
18118.75	19678.75
18121.25	19681.25
18123.75	19683.75
18126.25	19686.25
18128.75	19688.75
18131.25	19691.25
18133.75	19693.75
18136.25	19696.25
18138.75	19698.75

(4) 5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
340 Megahertz Separation (* channels are no longer available on a primary basis)	
18762.5*	19102.5*
18767.5*	19107.5*
18772.5*	19112.5*
18777.5*	19117.5*
18782.5*	19122.5*
18787.5*	19127.5*
18792.5*	19132.5*
18797.5*	19137.5*
18802.5*	19142.5*
18807.5*	19147.5*
18812.5*	19152.5*
18817.5*	19157.5*

(5) 5 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17702.5	N/A
17707.5	N/A
17712.5	N/A
17717.5	N/A
17722.5	N/A
17727.5	N/A
17732.5	N/A
17737.5	N/A
18062.5	19622.5
18067.5	19627.5
18072.5	19632.5
18077.5	19637.5
18082.5	19642.5
18087.5	19647.5
18092.5	19652.5
18097.5	19657.5
18102.5	19662.5
18107.5	19667.5
18112.5	19672.5
18117.5	19677.5
18122.5	19682.5
18127.5	19687.5
18132.5	19692.5
18137.5	19697.5

(6) MVPD use: Multichannel video programming distributors (MVPDs) can use any size channels for one-way operations in the 17.7–18.58 GHz band for any permissible communications specified for this band in §101.603 provided that they have coordinated the appropriate emission designators and power, but must request contiguous

spectrum (minus spectrum that is already licensed or prior coordinated in the area and thus blocked). MVPD systems must meet the efficiency requirements of § 101.141. Spectrum at 18.3–18.58 GHz is only available for grandfathered stations. See § 101.85.

(7) 10 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17705.0	19265.0*
17715.0	19275.0*
17725.0	19285.0*
17735.0	19295.0*
17745.0	19305.0
17755.0	19315.0
17765.0	19325.0
17775.0	19335.0
17785.0	19345.0
17795.0	19355.0
17805.0	19365.0
17815.0	19375.0
17825.0	19385.0
17835.0	19395.0
17845.0	19405.0
17855.0	19415.0
17865.0	19425.0
17875.0	19435.0
17885.0	19445.0
17895.0	19455.0
17905.0	19465.0
17915.0	19475.0
17925.0	19485.0
17935.0	19495.0
17945.0	19505.0
17955.0	19515.0
17965.0	19525.0
17975.0	19535.0
17985.0	19545.0
17995.0	19555.0
18005.0	19565.0
18015.0	19575.0
18025.0	19585.0
18035.0	19595.0
18045.0	19605.0
18055.0	19615.0
18065.0	19625.0
18075.0	19635.0
18085.0	19645.0
18095.0	19655.0
18105.0	19665.0
18115.0	19675.0
18125.0	19685.0
18135.0	19695.0
340 Megahertz Separation	
18585.0*	18925.0*
18595.0*	18935.0*
18605.0*	18945.0*
18615.0*	18955.0*
18625.0*	18965.0*
18635.0*	18975.0*
18645.0*	18985.0*
18655.0*	18995.0*
18665.0*	19005.0*
18675.0*	19015.0*
18685.0*	19025.0*
18695.0*	19035.0*
18705.0*	19045.0*
18715.0*	19055.0*
18725.0*	19065.0*
18735.0*	19075.0*
18745.0*	19085.0*
18755.0*	19095.0*
18765.0*	19105.0*
18775.0*	19115.0*
18785.0*	19125.0*
18795.0*	19135.0*
18805.0*	19145.0*
18815.0*	19155.0*

(8) 20 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17710.0	19270.0*
17730.0	19290.0*
17750.0	19310.0
17770.0	19330.0
17790.0	19350.0
17810.0	19370.0
17830.0	19390.0
17850.0	19410.0
17870.0	19430.0
17890.0	19450.0
17910.0	19470.0
17930.0	19490.0
17950.0	19510.0
17970.0	19530.0
17990.0	19550.0
18010.0	19570.0
18030.0	19590.0
18050.0	19610.0
18070.0	19630.0
18090.0	19650.0
18110.0	19670.0
18130.0	19690.0
340 Megahertz Separation	
18590.0*	18930.0*
18610.0*	18950.0*
18630.0*	18970.0*
18650.0*	18990.0*
18670.0*	19010.0*
18690.0*	19030.0*
18710.0*	19050.0*
18730.0*	19070.0*
18750.0*	19090.0*
18770.0*	19110.0*
18790.0*	19130.0*
18810.0*	19150.0*

(9) 30 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17715.0	N/A
17755.0	19315.0
17785.0	19345.0
17815.0	19375.0
17845.0	19405.0
17875.0	19435.0
17905.0	19465.0
17935.0	19495.0
17965.0	19525.0
17995.0	19555.0
18025.0	19585.0
18055.0	19615.0
18085.0	19645.0
18115.0	19675.0

(10) 40 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17720.0	19280.0*
17760.0	19320.0
17800.0	19360.0
17840.0	19400.0
17880.0	19440.0
17920.0	19480.0
17960.0	19520.0
18000.0	19560.0
18040.0	19600.0
18080.0	19640.0
18120.0	19680.0

(11) 50 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation	
17765.0	19325.0
17815.0	19375.0
17865.0	19425.0
17915.0	19475.0
17965.0	19525.0
18015.0	19575.0
18065.0	19625.0
18115.0	19675.0

(12) 80 Megahertz maximum authorized bandwidth channels:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
1560 Megahertz Separation (* channels are no longer available on a primary basis)	
17740.0	19300.0*
17820.0	19380.0
17900.0	19460.0
17980.0	19540.0
18060.0	19620.0

(13) The following frequencies on channels 35–39 are available for point-to-multipoint systems and are available by geographic area licensing in the 24 GHz Service to be used as the licensee desires. The 24 GHz spectrum can be aggregated or disaggregated and does not have to be used in the transmit/receive manner shown except to comply with international agreements along the U.S. borders. Channels 35 through 39 are licensed in the 24 GHz Service by Economic Areas for any digital fixed service. Channels may be used at either nodal or subscriber station locations for transmit or receive but must be coordinated with adjacent channel and adjacent area users in accordance with the provisions of § 101.509 of this subpart. Stations also must comply with international coordination agreements.

Channel No.	Nodal station frequency band (MHz) limits	User station frequency band (MHz) limits
(* channels are no longer available on a primary basis)		
25	18,820–18,830	19,160–19,170*
26	18,830–18,840	19,170–19,180*
27	18,840–18,850	19,180–19,190*
28	18,850–18,860	19,190–19,200*
29	18,860–18,870	19,200–19,210*
30	18,870–18,880	19,210–19,220*
31	18,880–18,890	19,220–19,230*
32	18,890–18,900	19,230–19,240*
33	18,900–18,910	19,240–19,250*
34	18,910–18,920	19,250–19,260*
35	24,250–24,290	25,050–25,090
36	24,290–24,330	25,090–25,130
37	24,330–24,370	25,130–25,170
38	24,370–24,410	25,170–25,210
39	24,410–24,450	25,210–25,250

(14) *Special provision for low power systems in the 17,700–19,700 MHz band:* Notwithstanding other provisions in 47 CFR part 101 and except for specified areas around Washington, DC, and Denver, Colorado, licensees of point-to-multipoint channel pairs 25–29 identified in paragraph (r)(13) of this section may continue to operate in accordance with the requirements of § 101.85 and may operate multiple low power transmitting devices within a defined service area. Operations are prohibited within 55 km when used outdoor and within 20 km when used indoor of the

coordinates 38 deg.48′ N/76 deg.52′ W (Washington, DC area) and 39 deg.43′ N/104 deg.46′ W (Denver, Colorado area). The service area will be a 28 kilometer omni directional radius originating from specified center reference coordinates. The specified center coordinates must be no closer than 56 kilometers from any co-channel nodal station or the specified center coordinates of another co-channel system. Applicants/licensees do not need to specify the location of each individual transmitting device operating within their defined service areas. Such operations are subject to the following requirements on the low power transmitting devices:

(i) Power must not exceed one watt EIRP and 100 milliwatts transmitter output power;

(ii) A frequency tolerance of 0.001% must be maintained; and

(iii) The mean power of emissions shall be attenuated in accordance with the following schedule:

(A) In any 4 kHz band, the center frequency of which is removed from the center frequency of the assigned channel by more than 50 percent of the channel bandwidth and is within the bands 18,820–18,870 MHz or 19,160–19,210 MHz:

$$A = 35 + .003\,(F - 0.5B)\ \text{dB}$$

or,

80 dB (whichever is the lesser attenuation).

Where:

A = Attenuation (in decibels) below output power level contained within the channel for a given polarization.

B = Bandwidth of channel in kHz.

F = Absolute value of the difference between the center frequency of the 4 kHz band measured at the center frequency of the channel in kHz.

(B) In any 4 kHz band the center frequency of which is outside the bands 18.820–18.870 GHz: At least 43 + 10 log P (mean output power in watts) decibels.

(iv) Low power stations authorized in the band 18.8–19.3 GHz after June 8, 2000, are restricted to indoor use only. No new licenses will be authorized for applications received after April 1, 2002.

(s) *21,200 to 23,600 MHz:* 50 MHz authorized bandwidth.

Transmit (receive) (MHz)	Receive (transmit) (MHz)
(1) 2.5 MHz bandwidth channels:	
21601.25	22801.25
21603.75	22803.75
21606.25	22806.25
21608.75	22808.75
21611.25	22811.25
21613.75	22813.75
21616.25	22816.25
21618.75	22818.75
21621.25	22821.25
21623.75	22823.75
21626.25	22826.25
21628.75	22828.75
21631.25	22831.25
21633.75	22833.75
21636.25	22836.25
21638.75	22838.75
21641.25	22841.25
21643.75	22843.75
21646.25	22846.25
21648.75	22848.75
21651.25	22851.25
21653.75	22853.75
21656.25	22856.25
21658.75	22858.75
21661.25	22861.25
21663.75	22863.75
21666.25	22866.25
21668.75	22868.75
21671.25	22871.25
21673.75	22873.75
21676.25	22876.25
21678.75	22878.75
21681.25	22881.25
21683.75	22883.75
21686.25	22886.25
21688.75	22888.75
21691.25	22891.25
21693.75	22893.75
21696.25	22896.25
21698.75	22898.75
21701.25	22901.25
21703.75	22903.75
21706.25	22906.25
21708.75	22908.75
21711.25	22911.25
21713.75	22913.75
21716.25	22916.25
21718.75	22918.75
21721.25	22921.25
21723.75	22923.75
21726.25	22926.25
21728.75	22928.75
21731.25	22931.25
21733.75	22933.75
21736.25	22936.25
21738.75	22938.75
21741.25	22941.25
21743.75	22943.75
21746.25	22946.25
21748.75	22948.75
21751.25	22951.25
21753.75	22953.75
21756.25	22956.25
21758.75	22958.75
21761.25	22961.25
21763.75	22963.75
21766.25	22966.25
21768.75	22968.75
21771.25	22971.25
21773.75	22973.75
21776.25	22976.25

Transmit (receive) (MHz)	Receive (transmit) (MHz)
21778.75	22978.75
21781.25	22981.25
21783.75	22983.75
21786.25	22986.25
21788.75	22988.75
21791.25	22991.25
21793.75	22993.75
21796.25	22996.25
21798.75	22998.75
22301.25	23501.25
22303.75	23503.75
22306.25	23506.25
22308.75	23508.75
22311.25	23511.25
22313.75	23513.75
22316.25	23516.25
22318.75	23518.75
22321.25	23521.25
22323.75	23523.75
22326.25	23526.25
22328.75	23528.75
22331.25	23531.25
22333.75	23533.75
22336.25	23536.25
22338.75	23538.75
22341.25	23541.25
22343.75	23543.75
22346.25	23546.25
22348.75	23548.75
22351.25	23551.25
22353.75	23553.75
22356.25	23556.25
22358.75	23558.75
22361.25	23561.25
22363.75	23563.75
22366.25	23566.25
22368.75	23568.75
22371.25	23571.25
22373.75	23573.75
22376.25	23576.25
22378.75	23578.75
22381.25	23581.25
22383.75	23583.75
22386.25	23586.25
22388.75	23588.75
22391.25	23591.25
22393.75	23593.75
22396.25	23596.25
22398.75	23598.75
(2) 5 MHz bandwidth channels:	
21602.5	22802.5
21607.5	22807.5
21612.5	22812.5
21617.5	22817.5
21622.5	22822.5
21627.5	22827.5
21632.5	22832.5
21637.5	22837.5
21642.5	22842.5
21647.5	22847.5
21652.5	22852.5
21657.5	22857.5
21662.5	22862.5
21667.5	22867.5
21672.5	22872.5
21677.5	22877.5
21682.5	22882.5
21687.5	22887.5
21692.5	22892.5
21697.5	22897.5
21702.5	22902.5
21707.5	22907.5
21712.5	22912.5
21717.5	22917.5
21722.5	22922.5
21727.5	22927.5
21732.5	22932.5
21737.5	22937.5
21742.5	22942.5
21747.5	22947.5
21752.5	22952.5
21757.5	22957.5
21762.5	22962.5
21767.5	22967.5
21772.5	22972.5
21777.5	22977.5
21782.5	22982.5
21787.5	22987.5
21792.5	22992.5
21797.5	22997.5
22302.5	23502.5
22307.5	23507.5
22312.5	23512.5
22317.5	23517.5
22322.5	23522.5
22327.5	23527.5
22332.5	23532.5
22337.5	23537.5
22342.5	23542.5
22347.5	23547.5
22352.5	23552.5
22357.5	23557.5
22362.5	23562.5
22367.5	23567.5
22372.5	23572.5
22377.5	23577.5
22382.5	23582.5
22387.5	23587.5
22392.5	23592.5
22397.5	23597.5
(3) 10 MHz bandwidth channels:	
21205	22405
21215	22415
21225	22425
21235	22435
21245	22445
21255	22455
21265	22465
21275	22475
21285	22485
21295	22495
21305	22505
21315	22515
21325	22525
21335	22535
21345	22545
21355	22555
21365	22565
21375	22575
21385	22585
21395	22595
21405	22605
21415	22615
21425	22625
21435	22635
21445	22645
21455	22655
21465	22665
21475	22675
21485	22685
21495	22695
21505	22705
21515	22715
21525	22725

Transmit (receive) (MHz)	Receive (transmit) (MHz)
21535	22735
21545	22745
21555	22755
21565	22765
21575	22775
21585	22785
21595	22795
21605[1]	[1]22805
21615[1]	[1]22815
21625[1]	[1]22825
21635[1]	[1]22835
21645[1]	[1]22845
21655[1]	[1]22855
21665[1]	[1]22865
21675[1]	[1]22875
21685[1]	[1]22885
21695[1]	[1]22895
21705[1]	[1]22905
21715[1]	[1]22915
21725[1]	[1]22925
21735[1]	[1]22935
21745[1]	[1]22945
21755[1]	[1]22955
21765[1]	[1]22965
21775[1]	[1]22975
21785[1]	[1]22985
21795[1]	[1]22995
21805[2]	[2]23005
21815[2]	[2]23015
21825[2]	[2]23025
21835[2]	[2]23035
21845[2]	[2]23045
21855[2]	[2]23055
21865[2]	[2]23065
21875[2]	[2]23075
21885[2]	[2]23085
21895[2]	[2]23095
21905[2]	[2]23105
21915[2]	[2]23115
21925[2]	[2]23125
21935[2]	[2]23135
21945[2]	[2]23145
21955[2]	[2]23155
21965[2]	[2]23165
21975[2]	[2]23175
21985[2]	[2]23185
21995[2]	[2]23195
22005	23205
22015	23215
22025[2]	23225[2]
22035	23235
22045	23245
22055	23255
22065	23265
22075[2]	23275[2]
22085	23285
22095	23295
22105	23305
22115	23315
22125	23325
22135	23335
22145	23345
22155	23355
22165	23365
22175	23375
22185	23385
22195	23395
22205	23405
22215	23415
22225	23425
22235	23435
22245	23445
22255	23455
22265	23465
22275	23475
22285	23485
22295	23495
22305[1]	[1]23505
22315[1]	[1]23515
22325[1]	[1]23525
22335[1]	[1]23535
22345[1]	[1]23545
22355[1]	[1]23555
22365[1]	[1]23565
22375[1]	[1]23575
22385[1]	[1]23585
22395[1]	[1]23595
(4) 20 MHz bandwidth channels:	
21210	22410
21230	22430
21260	22460
21280	22480
21310	22510
21330	22530
21360	22560
21380	22580
21410	22610
21430	22630
21460	22660
21480	22680
21510	22710
21530	22730
21560	22760
21580	22780
21610[1]	[1]22810
21630[1]	[1]22830
21660[1]	[1]22860
21680[1]	[1]22880
21710[1]	[1]22910
21730[1]	[1]22930
21760[1]	[1]22960
21780[1]	[1]22980
21810[2]	[2]23010
21830[2]	[2]23030
21860[2]	[2]23060
21880[2]	[2]23080
21910[2]	[2]23110
21930[2]	[2]23130
21960[2]	[2]23160
21980[2]	[2]23180
22010	23210
22030	23230
22060	23260
22080	23280
22110	23310
22130	23330
22160	23360
22180	23380
22210	23410
22230	23430
22260	23460
22280	23480
22310[1]	[1]23510
22330[1]	[1]23530
22360[1]	[1]23560
22380[1]	[1]23580
(5) 30 MHz bandwidth channels:	
21235	22435
21285	22485
21335	22535
21385	22585
21435	22635
21485	22685
21535	22735

Transmit (receive) (MHz)	Receive (transmit) (MHz)
21585	22785
21635[1]	[1]22835
21685[1]	[1]22885
21735[1]	[1]22935
21785[1]	[1]22985
21835[2]	[2]23035
21885[2]	[2]23085
21935[2]	[2]23135
21985[2]	[2]23185
22035	23235
22085	23285
22135	23335
22185	23385
22235	23435
22285	23485
22335[1]	[1]23535
22385[1]	[1]23585
(6) 40 MHz bandwidth channels:	
21220	22420
21270	22470
21320	22520
21370	22570
21420	22620
21470	22670
21520	22720
21570	22770
21620[1]	[1]22820
21670[1]	[1]22870
21720[1]	[1]22920
21770[1]	[1]22970
21820[2]	[2]23020
21870[2]	[2]23070
21920[2]	[2]23120
21970[2]	[2]23170
22020	23220
22070	23270
22120	23320
22170	23370
22220	23420
22270	23470
22320[1]	[1]23520
22370[1]	[1]23570
(7) 50 MHz bandwidth channels:	
21225	22425
21275	22475
21325	22525
21375	22575
21425	22625
21475	22675
21525	22725
21575	22775
21625[1]	[1]22825
21675[1]	[1]22875
21725[1]	[1]22925
21775[1]	[1]22975
21825[2]	[2]23025
21875[2]	[2]23075
21925[2]	[2]23125
21975[2]	[2]23175
22025	23225
22075	23275
22125	23325
22175	23375
22025[2]	23225[2]
22075[2]	23275[2]
22325[1]	[1]23525
22375[1]	[1]23575

[1] Alternate channels. These channels are set aside for narrow bandwidth systems and should be used only if all other channels are blocked.

[2] These frequencies may be assigned to low power systems, as defined in paragraph (8) of this section.

(8) *Special provisions for low power, limited coverage systems in the 21.8–22.0 GHz and 23.0–23.2 GHz band segments.* Notwithstanding any contrary provisions in this part, the frequency band segment 21.8–22.0 GHz paired with the frequency band segment 23.0–23.2 GHz may be authorized for low power, limited coverage systems subject to the following provisions:

(i) The maximum EIRP shall be 55 dBm and the rated transmitter output power shall not exceed 0.100 Watts;

(ii) In the band segments from 21.8–22.0 GHz and 23.0–23.2 GHz, the frequency tolerance for stations authorized on or before April 1, 2005 is 0.05%. Existing licensees and pending applicants on that date may continue to operate after that date with a frequency tolerance of 0.05%, provided that it does not cause harmful interference to the operation of any other licensee. The frequency tolerance of § 101.107(a) shall apply to stations applied for after April 1, 2005;

(iii) The maximum beamwidth shall not exceed 4 degrees;

(iv) The sidelobe suppression criteria contained in § 101.115 of this part shall not apply, except that a minimum front-to-back ratio of 38 dB shall apply;

(v) Upon showing of need, a maximum bandwidth of 50 MHz may be authorized per frequency assigned;

(vi) Radio systems authorized under the provisions of this section shall have no more than five hops in tandem, except upon showing of need, but in any event the maximum tandem length shall not exceed 40 km (25 miles);

(vii) Interfering signals at the antenna terminals of station authorized under this section shall not exceed –90 dBm and –70 dBm respectively, for co-channel and adjacent channel interfering signals; and

(viii) Stations authorized under the provisions of this section shall provide the protection from interference specified in § 101.105 to stations operating in accordance with the provisions of this part.

(t) *27,500–28,350; 29,100–29,250; 31,000–31,300 MHz.* These frequencies are available for LMDS systems. Each assignment will be made on a BTA service area basis, and the assigned spectrum

may be subdivided as desired by the licensee.

(u) *31,000–31,300 MHz*. Stations licensed in this band prior to March 11, 1997, may continue their authorized operations, subject to license renewal, on the condition that harmful interference will not be caused to LMDS operations licensed in this band after June 30, 1997. Non-LMDS stations licensed after March 11, 1997, based on applications refiled no later than June 26, 1998 are unprotected and subject to harmful interference from each other and from stations licensed prior to March 11, 1997, and are licensed on a secondary basis to LMDS. In the subbands 31,000–31,075 MHz and 31,225–31,300 MHz, stations initially licensed prior to March 11, 1997, except in LTTS, and LMDS operations authorized after June 30, 1997, are equally protected against harmful interference from each other in accordance with the provisions of §101.103(b). For stations, except in LTTS, permitted to relocate to these sub-bands, the following paired frequencies are available:

Transmit (receive) (MHz)	Receive (transmit) (MHz)
(1) 25 MHz Authorized Bandwidth Channels	
31,012.5	31,237.5
31,037.5	31,262.5
31,062.5	31,287.5
(2) 75 MHz Authorized Bandwidth Channel	
31,037.5	31,275.0

NOTE TO (u): These channels are assigned for use within a rectangular service area to be described in the application by the maximum and minimum latitudes and longitudes. Such service area must be as small as practical consistent with the local service requirements of the carrier. These frequency plans may be subdivided as desired by the licensee and used within the service area as desired without further authorization subject to the terms and conditions set forth in §101.149. These frequencies may be assigned only where it is shown that the applicant will have reasonable projected requirements for a multiplicity of service points or transmission paths within the area.

(v)(1) Assignments in the band 38,600–40,000 MHz must be according to the following frequency plan:

Channel Group A		Channel Group B	
Channel No.	Frequence band limits (MHz)	Channel No.	Frequency band limits (MHz)
1–A	38,600–38,650	1–B	39,300–39,350
2–A	38,650–38,700	2–B	39,350–39,400
3–A	38,700–38,750	3–B	39,400–39,450
4–A	38,750–38,800	4–B	39,450–39,500
5–A	38,800–38,850	5–B	39,500–39,550
6–A	38,850–38,900	6–B	39,550–39,600
7–A	38,900–38,950	7–B	39,600–39,650
8–A	38,950–39,000	8–B	39,650–39,700
9–A	39,000–39,050	9–B	39,700–39,750
10–A	39,050–39,100	10–B	39,750–39,800
11–A	39,100–39,150	11–B	39,800–39,850
12–A	39,150–39,200	12–B	39,850–39,900
13–A	39,200–39,250	13–B	39,900–39,950
14–A	39,250–39,300	14–B	39,950–40,000

(v)(2) Channels Blocks 1 through 14 are assigned for use within Economic Areas (EAs). Applicants are to apprise themselves of any licensed rectangular service areas within the EA for which they seek a license and comply with the requirements set forth in §101.103. All of the channel blocks may be subdivided as desired by the licensee and used within its service area as desired without further authorization subject to the terms and conditions set forth in §101.149.

(w) Fixed systems licensed, in operation, or applied for in the 3,700–4,200, 5925–6425, 6,525–6,875, 10,550–10,680, and 10,700–11,700 MHz bands prior to July 15, 1993, are permitted to use channel plans in effect prior to that date, including adding channels under those plans.

(x) Operations on other than the listed frequencies may be authorized where it is shown that the objectives or requirements of the interference criteria prescribed in §101.105 could not

otherwise be met to resolve the interference problems.

(y) *Special requirements for operations in the band 29.1–29.25 GHz.* (1)(i) LMDS receive stations operating on frequencies in the 29.1–29.25 GHz band within a radius of 75 nautical miles of the geographic coordinates provided by a non-GSO MSS licensee pursuant to paragraphs (c)(2) or (c)(3)(i) of this section (the ''feeder link earth station complex protection zone'') shall accept any interference caused to them by such earth station complexes and shall not claim protection from such earth station complexes.

(ii) LMDS licensees operating on frequencies in the 29.1–29.25 GHz band outside a feeder link earth station complex protection zone shall cooperate fully and make reasonable efforts to resolve technical problems with the non-GSO MSS licensee to the extent that transmissions from the non-GSO MSS operator's feeder link earth station complex interfere with an LMDS receive station.

(2) No more than 15 days after the release of a public notice announcing the commencement of LMDS auctions, feeder link earth station complexes to be licensed pursuant to Section 25.257 shall be specified by a set of geographic coordinates in accordance with the following requirements: no feeder link earth station complex may be located in the top eight (8) metropolitan statistical areas (''MSAs''), ranked by population, as defined by the Office of Management and Budget as of June 1993, using estimated populations as of December 1992; two (2) complexes may be located in MSAs 9 through 25, one of which must be Phoenix, AZ (for a complex at Chandler, AZ); two (2) complexes may be located in MSAs 26 to 50; three (3) complexes may be located in MSAs 51 to 100, one of which must be Honolulu, Hawaii (for a complex at Waimea); and the three (3) remaining complexes must be located at least 75 nautical miles from the borders of the 100 largest MSAs or in any MSA not included in the 100 largest MSAs. Any location allotted for one range of MSAs may be taken from an MSA below that range.

(3)(i) Any non-GSO MSS licensee may at any time specify sets of geographic coordinates for feeder link earth station complexes with each earth station contained therein to be located at least 75 nautical miles from the borders of the 100 largest MSAs.

(ii) For purposes of paragraph (c)(3)(i) of this section, non-GSO MSS feeder link earth station complexes shall be entitled to accommodation only if the affected non-GSO MSS licensee preapplies to the Commission for a feeder link earth station complex or certifies to the Commission within sixty days of receiving a copy of an LMDS application that it intends to file an application for a feeder link earth station complex within six months of the date of receipt of the LMDS application.

(iii) If said non-GSO MSS licensee application is filed later than six months after certification to the Commission, the LMDS and non-GSO MSS entities shall still cooperate fully and make reasonable efforts to resolve technical problems, but the LMDS licensee shall not be obligated to re-engineer its proposal or make changes to its system.

(4) LMDS licensees or applicants proposing to operate hub stations on frequencies in the 29.1–29.25 GHz band at locations outside of the 100 largest MSAs or within a distance of 150 nautical miles from a set of geographic coordinates specified under paragraph (c)(2) or (c)(3)(i) of this section shall serve copies of their applications on all non-GSO MSS applicants, permitees or licensees meeting the criteria specified in §25.257(a). Non-GSO MSS licensees or applicants shall serve copies of their feeder link earth station applications, after the LMDS auction, on any LMDS applicant or licensee within a distance of 150 nautical miles from the geographic coordinates that it specified under paragraph (c)(2) or (c)(3)(i) of this section. Any necessary coordination shall commence upon notification by the party receiving an application to the party who filed the application. The results of any such coordination shall be reported to the Commission within sixty days. The non-GSO MSS earth station licensee shall also provide all such LMDS licensees with a copy of its channel plan.

(z) *71,000–76,000 MHz; 81,000–86,000 MHz; 92,000–94,000 MHz; 94,100–95,000*

MHz. (1) Those applicants who are approved in accordance with FCC Form 601 will each be granted a single, nonexclusive nationwide license. Site-by-site registration is on a first-come, first-served basis. Registration will be in the Universal Licensing System until the Wireless Telecommunications Bureau announces by public notice, the implementation of a third-party database. *See* 47 CFR 101.1523. Links may not operate until NTIA approval is received. Licensees may use these bands for any point-to-point non-broadcast service.

(2) Prior links shall be protected using the interference protection criteria set forth in section 101.105. For transmitters employing digital modulation techniques and operating in the 71,000–76,000 MHz or 81,000–86,000 MHz bands, the licensee must construct a system that meets a minimum bit rate of 0.125 bits per second per Hertz of bandwidth. For transmitters that operate in the 92,000–94,000 MHz or 94,100–95,000 MHz bands, licensees must construct a system that meets a minimum bit rate of 1.0 bit per second per Hertz of bandwidth. If it is determined that a licensee has not met these loading requirements, then the database will be modified to limit coordination rights to the spectrum that is loaded and the licensee will lose protection rights on spectrum that has not been loaded.

[61 FR 26677, May 28, 1996]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 101.147, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and at *www.fdsys.gov*.

§ 101.149 Special requirements for operation in the band 38,600–40,000 MHz

Assigned frequency channels in the band 38,600–40,000 MHz may be subdivided and used anywhere in the authorized service area, subject to the following terms and conditions:

(a) No interference may be caused to a previously existing station operating in another authorized service area;

(b) Each operating station must have posted a copy of the service area authorization; and

(c) The antenna structure height employed at any location may not exceed the criteria set forth in § 17.7 of this chapter unless, in each instance, authorization for use of a specific maximum antenna structure for each location has been obtained from the FAA prior to the erection of the antenna.

§ 101.151 Use of signal boosters.

Private operational-fixed licensees authorized to operate multiple address systems in the 928–929/952–960 MHz and 932–932.5/941–941.5 MHz bands may employ signal boosters at fixed locations in accordance with the following criteria:

(a) The amplified signal is retransmitted only on the exact frequency(ies) of the originating base, fixed, mobile, or portable station(s). The booster will fill in only weak signal areas and cannot extend the system's normal signal coverage area.

(b) Class A narrowband signal boosters must be equipped with automatic gain control circuitry which will limit the total effective radiated power (ERP) of the unit to a maximum of 5 watts under all conditions. Class B broadband signal boosters are limited to 5 watts ERP for each authorized frequency that the booster is designed to amplify.

(c) Class A narrowband boosters must meet the out-of-band emission limits of § 101.111 for each narrowband channel that the booster is designed to amplify. Class B broadband signal boosters must meet the emission limits of § 101.111 for frequencies outside of the booster's design passband.

(d) Class B broadband signal boosters are permitted to be used only in confined or indoor areas such as buildings, tunnels, underground areas, etc., or remote areas, *i.e.*, areas where there is little or no risk of interference to other users.

(e) The licensee is given authority to operate signal boosters without separate authorization from the Commission. Certificated equipment must be employed and the licensee must ensure that all applicable rule requirements are met.

(f) Licensees employing either Class A narrowband or Class B broadband signal boosters as defined in § 101.3 are responsible for correcting any harmful

interference that the equipment may cause to other systems.

[61 FR 31052, June 19, 1996, as amended at 63 FR 36611, July 7, 1998]

Subpart D—Operational Requirements

§ 101.201 Station inspection.

The licensee of each station authorized in the radio services included in this part must make the station available for inspection by representatives of the Commission at any reasonable hour.

§ 101.203 Communications concerning safety of life and property.

(a) Handling and transmission of messages concerning the safety of life or property which is in imminent danger must be afforded priority over other messages.

(b) No person may knowingly cause to be transmitted any false or fraudulent message concerning the safety of life or property, or refuse upon demand immediately to relinquish the use of a radio circuit to enable the transmission of messages concerning the safety of life or property which is in imminent danger, or knowingly interfere or otherwise obstruct the transmission of such messages.

§ 101.205 Operation during emergency.

The licensee of any station in these services may, during a period of emergency in which normal communication facilities are disrupted as a result of hurricane, flood, earthquake, or similar disaster, utilize such station for emergency communication service in a manner other than that specified in the instrument of authorization: Provided:

(a) That as soon as possible after the beginning of such emergency use, notice be sent to the Commission stating the nature of the emergency and the use to which the station is being put;

(b) That the emergency use of the station must be discontinued as soon as substantially normal communication facilities are again available;

(c) That the Commission must be notified immediately when such special use of the station is terminated;

(d) That, in no event, will any station engage in emergency transmission on frequencies other than, or with power in excess of, that specified in the instrument of authorization or as otherwise expressly provided by the Commission, or by law; and

(e) That the Commission may, at any time, order the discontinuance of any such emergency communication.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68983, Dec. 14, 1998]

§ 101.207 Suspension of transmission.

Transmission must be suspended immediately upon detection by the station or operator licensee or upon notification by the Commission of a deviation from the technical requirements of the station authorization and must remain suspended until such deviation is corrected, except for transmission concerning the immediate safety of life or property, in which case transmission must be suspended immediately after the emergency is terminated.

§ 101.209 Operation of stations at temporary fixed locations for communication between the United States and Canada or Mexico.

Stations authorized to operate at temporary fixed locations may not be used for transmissions between the United States and Canada, or the United States and Mexico, without prior specific notification to, and authorization from, the Commission. Notification of such intended usage of the facilities should include a detailed showing of the operation proposed, including the parties involved, the nature of the communications to be handled, the terms and conditions of such operations, the time and place of operation, such other matters as the applicant deems relevant, and a showing as to how the public interest, convenience and necessity would be served by the proposed operation. Such notification should be given sufficiently in advance of the proposed date of operation to permit any appropriate correlation with the respective foreign government involved (see §§ 101.31, 101.811, 101.813, and 101.815).

§ 101.211 Operator requirements.

(a) Any person, with the consent or authorization of the licensee, may employ stations in this service for the purpose of telecommunications in accordance with the conditions and limitations set forth in § 101.135.

(b) The station licensee is responsible for the proper operation of the station at all times and is expected to provide for observations, servicing and maintenance as often as may be necessary to ensure proper operation.

(c) The provisions of paragraph (a) of this section may not be construed to change or diminish in any respect the responsibility of station licensees to have and to maintain control over the stations licensed to them (including all transmitter units thereof), or for the proper functioning and operation of those stations (including all transmitter units thereof) in accordance with the terms of the licenses of those stations.

§ 101.213 Station identification.

Stations in these services are exempt from the requirement to identify transmissions by call sign or any other station identifier.

§ 101.215 Posting of station authorization and transmitter identification cards, plates, or signs.

(a) Each licensee shall post at the station the name, address and telephone number of the custodian of the station license or other authorization if such license or authorization is not maintained at the station.

(b) The requirements in paragraph (a) of this section do not apply to remote stations using frequencies listed in § 101.147(b).

§ 101.217 Station records.

Each licensee of a station subject to this part shall maintain records in accordance with the following:

(a) For all stations, the results and dates of transmitter measurements and the name of the person or persons making the measurements;

(b) For all stations, when service or maintenance duties are performed, which may affect their proper operation, the responsible operator shall sign and date an entry in the station record concerned, giving:

(1) Pertinent details of all transmitter adjustments performed by him or under his supervision; and

(2) His name and address, provided that this information, so long as it remains unchanged, is not required to be repeated in the case of a person who is regularly employed as operator on a full-time basis at the station.

(c) The records shall be kept in an orderly manner, and in such detail that the data required are readily available. Key letters or abbreviations may be used if proper meaning or explanation is set forth in the record.

(d) Each entry in the records of each station shall be signed by a person qualified to do so, having actual knowledge of the facts to be recorded.

(e) No record or portion thereof shall be erased, obliterated, or willfully destroyed within the required retention period. Any necessary correction may be made only by the person originating the entry, who shall strike out the erroneous portion, initial the correction made and indicate the date of correction.

(f) Records required by this part shall be retained by the licensee for a period of at least one year.

Subpart E—Miscellaneous Common Carrier Provisions

§ 101.301 National defense; free service.

Any common carrier authorized under the rules of this part may render to any agency of the United States Government free service in connection with the preparation for the national defense. Every such carrier rendering any such free service must make and file, in duplicate, with the Commission, on or before the 31st of July and on or before the 31st day of January in each year, reports covering the periods of 6 months ending on the 30th of June and the 31st of December, respectively, next prior to said dates. These reports must show the names of the agencies to which free service was rendered pursuant to this rule, the general character of the communications handled for each agency, and the charges in dollars which would have accrued to the

carrier for such service rendered to each agency if charges for such communications had been collected at the published tariff rates.

§ 101.303 Answers to notices of violation.

Any person receiving official notice of a violation of the terms of the Communications Act of 1934, as amended, any other Federal statute or Executive Order pertaining to radio or wire communications or any international radio or wire communications treaty or convention, or regulations annexed thereto to which the United States is a party, or the rules and regulations of the Federal Communications Commission, must, within 10 days from such receipt, send a written answer to the office of the Commission originating the official notice. If an answer cannot be sent or an acknowledgment made within such 10-day period by reason of illness or other unavoidable circumstances, acknowledgment and answer must be made at the earliest practicable date with a satisfactory explanation of the delay. The answer to each notice must be complete in itself and may not be abbreviated by reference to other communications or answers to other notices. If the notice relates to some violation that may be due to the physical or electrical characteristics of transmitting apparatus, the answer must state fully what steps have been taken to prevent future violations, and, if any new apparatus is to be installed, the date such apparatus was ordered, the name of the manufacturer, and promised date of delivery. If the installation of such apparatus requires a construction permit, the file number of the application must be given or, if a file number has not been assigned by the Commission, such identification as will permit ready reference thereto. If the notice of violation relates to inadequate maintenance resulting in improper operation of the transmitter, the name and license number of the operator performing the maintenance must be given. If the notice of violation relates to some lack of attention to, or improper operation of, the transmitter by other employees, the reply must enumerate the steps taken to prevent a recurrence of such lack of attention or improper operation.

§ 101.305 Discontinuance, reduction or impairment of service.

(a) If the public communication service provided by a station in the Common Carrier Radio Services, the Local Multipoint Distribution Service or 24 GHz Service is involuntarily discontinued, reduced or impaired for a period exceeding 48 hours, the station licensee must promptly notify the Commission. In every such case, the licensee must furnish full particulars as to the reasons for such discontinuance, reduction or impairment of service, including a statement as to when normal service is expected to be resumed. When normal service is resumed, prompt notification thereof must be given Commission.

(b) No station licensee subject to title II of the Communications Act of 1934, as amended, may voluntarily discontinue, reduce or impair public communication service to a community or part of a community without obtaining prior authorization from the Commission pursuant to the procedures set forth in part 63 of this chapter. In the event that permanent discontinuance of service is authorized by the Commission, the station license is terminated; except that station licenses in the Local Multipoint Distribution Service and 24 GHz Service are not terminated if the discontinuance is a result of a change of status by the licensee from common carrier to non-common carrier pursuant to § 1.929 of this chapter.

(c) Any licensee not subject to title II of the Communications Act of 1934, as amended, who voluntarily discontinues, reduces or impairs public communication service to a community or a part of a community must notify the Commission within 7 days thereof. In the event of permanent discontinuance of service, the station license is automatically terminated; except that station licenses in the Local Multipoint Distribution Service and 24 GHz Service are not terminated if the discontinuance is a result of a change of status by the licensee from non-common carrier to common carrier pursuant to § 1.929 of this chapter.

(d) If any common carrier radio frequency should not be used to render any service as authorized during a consecutive period of twelve months at any time after construction is completed under circumstances that do not fall within the provisions of paragraph (a), (b), or (c) of this section, or, if removal of equipment or facilities has rendered the station not operational, the licensee must, within thirty days of the end of such period of nonuse:

(1) Cancel the station license (or licenses); or

(2) File an application for modification of the license (or licenses) to delete the unused frequency (or frequencies); or

(3) Request waiver of this rule and demonstrate either that the frequency will be used (as evidenced by appropriate requests for service, etc.) within six months of the end of the initial period of nonuse, or that the frequency will be converted to allow rendition of other authorized public services within one year of the end of the initial period of nonuse by the filing of appropriate applications within six months of the end of the period of nonuse.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23168, Apr. 29, 1997; 63 FR 68983, Dec. 14, 1998; 65 FR 59359, Oct. 5, 2000]

§ 101.307 Tariffs, reports, and other material required to be submitted to the Commission.

Sections 1.771 through 1.815 of this chapter contain summaries of certain materials and reports, including schedule of charges and accounting and financial reports, which, when applicable, must be filed with the Commission.

§ 101.309 Requirement that licensees respond to official communications.

All licensees in these services are required to respond to official communications from the Commission with reasonable dispatch and according to the tenor of such communications. Failure to do so will be given appropriate consideration in connection with any subsequent applications which the offending party may file and may result in the designation of such applications for hearing, or in appropriate cases, the institution of proceedings looking to the modification or revocation of the pertinent authorizations.

§ 101.311 Equal employment opportunities.

Equal opportunities in employment must be afforded by all common carrier licensees and all Local Multipoint Distribution Service and 24 GHz Service licensees in accordance with the provisions of § 21.307 of this chapter.

[65 FR 59359, Oct. 5, 2000]

Subpart F [Reserved]

Subpart G—24 GHz Service and Digital Electronic Message Service

§ 101.501 Eligibility.

See § 101.147(n) for licensing of DEMS facilities in the 10.6 GHz band. Applications for new facilities using the 18 GHz band are no longer being accepted. Any entity, other than one precluded by § 101.7, is eligible for authorization to provide 24 GHz Service under this subpart.

[65 FR 59359, Oct. 5, 2000]

§ 101.503 Digital Electronic Message Service Nodal Stations.

10.6 GHz DEMS Nodal Stations may be authorized only as a part of an integrated communication system wherein 10.6 GHz DEMS User Stations associated therewith also are licensed to the 10.6 GHz DEMS Nodal Station licensee. Applications for 10.6 GHz DEMS Nodal Station licenses should specify the maximum number of 10.6 GHz DEMS User Stations to be served by that nodal station. Any increase in that number must be applied for pursuant to § 1.913 of this chapter.

[65 FR 59359, Oct. 5, 2000]

§ 101.505 Frequencies.

Frequencies, and the conditions on which they are available, for DEMS operations are contained in this subpart as well as in § 101.147(m), (n), and (r)(9).

[65 FR 59359, Oct. 5, 2000]

§ 101.507 Frequency stability.

The frequency stability in the 10,550–10,680 MHz band must be ±0.0001% for each DEMS Nodal Station transmitter

and ±0.0003% for each DEMS User Station transmitter. The frequency stability in the 24,250–25,250 MHz bands must be ±0.001% for each Nodal Station transmitter and ±0.003% for each User Station transmitter.

[68 FR 4961, Jan. 31, 2003]

§ 101.509 Interference protection criteria.

(a) As a condition for use of frequencies in this service each licensee is required to:

(1) Engineer the system to be reasonably compatible with adjacent and co-channel operations in the same or adjacent areas on all frequencies; and

(2) Cooperate fully and in good faith to resolve whatever potential interference and transmission security problems may be present in adjacent and co-channel operations.

(b) All harmful interference to other users of co-channel and adjacent channel use in the same or adjacent geographical area are prohibited. In areas where Economic Areas are in close proximity, careful consideration should be given to minimum power requirements and to the location, height, and radiation pattern of the transmitting and receiving antennas. Licensees are expected to cooperate fully in attempting to resolve problems of potential interference before bringing the matter to the attention of the Commission.

(c) Licensee shall coordinate their facilities whenever the facilities have optical line-of-sight into other licensees' areas or are within the same geographic area. Licensees are encouraged to develop operational agreements with relevant licensees in the same or adjacent areas. Incumbent SMSA licensee(s) shall retain exclusive rights to its channel(s) within its SMSA and must be protected.

(d) Licensees shall comply with the appropriate coordination agreements between the United States and Canada and the United States and Mexico concerning cross-border sharing and use of the 24 GHz bands which may require using channels pairs in accordance with the table in § 101.147(r)(9).

(e) The Commission recommends that coordination is not necessary if the power flux density (pfd) at the boundary of the relevant adjacent area is lower than –114 dBW/m^2 in any 1 MHz. This value can be changed and agreed upon by both coordinating parties. Licensees should be able to deploy with a pfd up to –94 dBW/m^2 in any 1 MHz at the boundary of the relevant adjacent area without negatively affecting the successful operations of the adjacent area licensee.

[65 FR 59360, Oct. 5, 2000]

§ 101.511 Permissible services.

(a) Authorizations for stations in the 24 GHz Service will be granted to provide services on a common carrier basis or a non-common carrier basis or on both a common carrier and non-common carrier basis in a single authorization.

(b) Stations may render any kind of digital communications service consistent with the Commission's rules and the regulatory status of the station to provide services on a common carrier or non-common carrier basis.

(c) An applicant or licensee may submit a petition at any time requesting clarification of the regulatory status required to provide a specific communications service.

[65 FR 59360, Oct. 5, 2000]

§ 101.513 Transmitter power.

The transmitter power will be governed by § 101.113. Further, each application must contain an analysis demonstrating compliance with § 101.113(a).

§ 101.515 Emissions and bandwidth.

Different types of emissions may be authorized if the applicant describes fully the modulation and bandwidth desired, and demonstrates that the bandwidth desired is no wider than needed to provide the intended service. In no event, however, may the necessary or occupied bandwidth exceed the specified channel width of the assigned pair.

§ 101.517 Antennas.

(a) Transmitting antennas may be omnidirectional or directional, consistent with coverage and interference requirements.

(b) The use of horizontal or vertical plane wave polarization, or right hand

or left hand rotating elliptical polarization must be used to minimize harmful interference between stations.

(c) Directive antennas must be used at all DEMS User Stations and may be elevated no higher than necessary to assure adequate service. Antenna structures requiring FAA notification under part 17 of this chapter must be registered with the Commission. The structure owner is responsible for registering, painting, and lighting the structure if applicable. Requests for such authorization must show the inclusive dates of the proposed operation.

§ 101.519 Interconnection.

(a) All DEMS licensees must make available to the public all information necessary to allow the manufacture of user equipment that will be compatible with the licensee's network.

(b) All DEMS licensees must make available to the public all information necessary to allow interconnection of DEMS networks.

§ 101.521 Spectrum utilization.

All applicants for DEMS frequencies in the 10.6 GHz band must submit as part of the original application a detailed plan indicating how the bandwidth requested will be utilized. In particular the application must contain detailed descriptions of the modulation method, the channel time sharing method, any error detecting and/or correcting codes, any spatial frequency reuse system and the total data throughput capacity in each of the links in the system. Further, the application must include a separate analysis of the spectral efficiency including both information bits per unit bandwidth and the total bits per unit bandwidth.

[65 FR 59360, Oct. 5, 2000]

§ 101.523 Service areas.

(a) The service areas for 24 GHz are Economic Areas (EAs) as defined in this paragraph (a). The Bureau of Economic Analysis, U.S. Department of Commerce, organized the 50 States and the District of Columbia into 172 EAs. *See* 60 FR 13114 (March 10, 1995). Additionally, there are four FCC-created EA-like areas:

(1) Guam and Northern Mariana Islands;

(2) Puerto Rico and the U.S. Virgin Islands;

(3) American Samoa, and

(4) the Gulf of Mexico. The Gulf of Mexico EA extends from 12 nautical miles off the U.S. Gulf coast outward into the Gulf. *See* 62 FR 9636 (March 3, 1997), in which the Commission created an additional four economic area-like areas for a total of 176 EA service areas. Maps of the EAs and the FEDERAL REGISTER Notice that established the 172 Economic Areas (EAs) are available for public inspection and copying at the FCC Reference Center, Room CY A–257, 445 12th St., SW., Washington, DC 20554. These maps and data are also available on the FCC Web site at *www.fcc.gov/oet/info/maps/areas/*.

(b) Where an incumbent SMSA license area in the 24 GHz band occupies only a portion of an EA available for application under the competitive bidding rules, the SMSA portion will be excluded from auction and the incumbent licensee will retain the exclusive right to those channels within the SMSA.

[65 FR 59360, Oct. 5, 2000, as amended at 69 FR 44608, July 27, 2004]

§ 101.525 24 GHz system operations.

(a) A licensee using the 24 GHz band may construct and operate any number of fixed stations anywhere within the area authorized to serve without prior authorization, except as follows:

(1) A station would be required to be individually licensed if:

(i) International agreements require coordination;

(ii) Submission of an Environmental Assessment is required under § 1.1307 of this chapter;

(iii) The station would affect areas identified in § 1.924 of this chapter.

(2) Any antenna structure that requires notification to the Federal Aviation Administration (FAA) must be registered with the Commission prior to construction under § 17.4 of this chapter.

(b) Whenever a licensee constructs or makes system changes as described in paragraph (a)(1) of this section, the licensee is required to notify the Commission within 30 days of the change

under § 1.947 of this chapter and include a statement of the technical parameters of the changed station.

[65 FR 59360, Oct. 5, 2000, as amended at 69 FR 17959, Apr. 6, 2004]

§ 101.526 License term.

The license term for stations licensed under this subpart is ten years from the date of license grant or license renewal for incumbent licensees.

[65 FR 59360, Oct. 5, 2000]

§ 101.527 Construction requirements for 24 GHz operations.

(a) Each licensee must make a showing of ''substantial service'' within ten years of its license grant. A ''substantial service'' assessment will be made at renewal pursuant to the provisions and procedures set forth in § 1.949 of this chapter. ''Substantial service'' is a service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal during its past license term.

(b) Each licensee must, at a minimum file:

(1) A report, maps and other supporting documents describing its current service in terms of geographic coverage and population served to the Commission. The report must also contain a description of the licensees' investments in its operations. The report must be labeled as an attachment to the renewal application; and

(2) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and a list of any pending proceedings that relate to any matter described in this paragraph (b)(2).

(c) Failure to demonstrate that substantial service is being provided in the service area will result in forfeiture of the license, and the licensee will be unable to regain it.

(d) The frequencies associated with incumbent authorizations, licensed on a SMSA basis, that have cancelled automatically or otherwise been recovered by the Commission will automatically revert to the applicable EA licensee.

[65 FR 59360, Oct. 5, 2000]

§ 101.529 Renewal expectancy criteria for 24 GHz licenses.

(a) A renewal applicant involved in a renewal proceeding shall receive a preference, commonly referred to as a renewal expectancy, that is the most important factor to be considered in the proceeding as long as the applicant's past record for the relevant license period demonstrates that:

(1) The renewal applicant has provided ''substantial service'' pursuant to § 101.527; and

(2) The renewal applicant has substantially complied with applicable FCC rules, policies, and the Communications Act of 1934, as amended.

(b) In order to establish its right to a renewal expectancy, a licensee in the 24 GHz service involved in a renewal proceeding must submit a showing explaining why it should receive a renewal expectancy. At a minimum, this showing must include:

(1) A description of how the licensee has complied with the ''substantial service'' requirement; and

(2) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or policy; and a list of any pending proceedings that relate to any matter described in this paragraph (b)(2).

(c) In making its showing of entitlement to a renewal expectancy, a renewal applicant may claim credit for any system modification applications that were pending on the date it filed its renewal application. Such credit will not be allowed if the modification application is dismissed or denied.

[65 FR 59361, Oct. 5, 2000]

§ 101.531 [Reserved]

§ 101.533 Regulatory status.

(a) *Initial applications.* An applicant for a 24 GHz license must specify on FCC Form 601 if it is requesting authorization to provide services on a common carrier basis, a non-common carrier basis, or on both a common carrier and non-common carrier basis.

(b) *Amendment of pending applications.* Any pending application may be amended to:

(1) Change the carrier status requested; or

(2) Add to the pending request in order to obtain both common carrier and non-common carrier status in a single license.

(c) *Modification of license.* A licensee may modify a license to:

(1) Change the carrier status authorized; or

(2) Add to the status authorized in order to obtain both common carrier and non-common carrier status in a single license.

[65 FR 59361, Oct. 5, 2000]

§ 101.535 Geographic partitioning and spectrum aggregation/disaggregation.

(a) *Eligibility.* (1) 24 GHz licensees may apply to the Commission to partition their licensed geographic service areas to eligible entities and are free to determine the portion of their service areas to be partitioned. 24 GHz licensees may aggregate or disaggregate their licensed spectrum at any time following the grant of a license.

(2) Any existing frequency coordination agreements shall convey with the assignment of the geographic area or spectrum, and shall remain in effect unless new agreements are reached.

(b) *Technical standards*—(1) *Aggregation.* There is no limitation on the amount of spectrum that a 24 GHz licensee may aggregate.

(2) *Partitioning.* In the case of partitioning, applicants and licensees must file FCC Form 603 pursuant to § 1.948 of this chapter and list the partitioned service area on a schedule to the application. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83).

(3) *Disaggregation.* Spectrum may be disaggregated in any amount. A licensee need not retain a minimum amount of spectrum.

(4) *Combined partitioning and disaggregation.* The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(c) *License term.* The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in § 101.526.

(d) *Construction requirements.* Applications requesting approval for partitioning or disaggregation must include a certification by each party stating that one or both parties will satisfy the construction requirement set forth in § 101.529. Failure by a party to meet its respective construction requirement will result in the automatic cancellation of its license without further Commission action.

[65 FR 59361, Oct. 5, 2000, as amended at 67 FR 46379, July 9, 2002]

§ 101.537 24 GHz band subject to competitive bidding.

Mutually exclusive initial applications for 24 GHz band licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 46379, July 9, 2002]

§ 101.538 Designated entities.

(a) *Eligibility for small business provisions.* (1) A very small business is an entity that, together with its controlling interests and affiliates, has average gross revenues not exceeding $3 million for the preceding three years.

(2) A small business is an entity that, together with its controlling interests and affiliates, has average gross revenues not exceeding $15 million for the preceding three years.

(3) An entrepreneur is an entity that, together with its controlling interests and affiliates, has average gross revenues not exceeding $40 million for the preceding three years.

(b) *Bidding credits.* A winning bidder that qualifies as a very small business, as defined in this section, or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(i) of this chapter. A winning bidder that qualifies as a small business, as defined in this section, or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as an entrepreneur, as defined in this section, or a consortium of entrepreneurs may use

the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter.

[65 FR 59361, Oct. 5, 2000, as amended at 67 FR 46379, July 9, 2002; 68 FR 43002, July 21, 2003]

Subpart H—Private Operational Fixed Point-to-Point Microwave Service

§ 101.601 Eligibility.

Any person, or any governmental entity or agency, eligible for licensing in a radio service or pool under part 80, 87, or 90 of this chapter or any person proposing to provide communications service to such persons, governmental entities or agencies is eligible to hold a license under this subpart. This subpart shall not apply to stations offering MVDDS in the 12.2–12.7 GHz band.

[62 FR 18936, Apr. 17, 1997, as amended at 67 FR 43040, June 26, 2002]

§ 101.603 Permissible communications.

(a) Except as provided in paragraph (b) of this section, stations in this radio service may transmit communications as follows:

(1) On frequencies below 21,200 MHz, licensees may transmit their own communications, including the transmission of their products and information services, to their customers except that the distribution of video entertainment material to customers is permitted only as indicated in § 101.101 and paragraph (a)(2) of this section.

(2) In the frequency bands 6425–6525 MHz, 17,700–18,580 MHz, and on frequencies above 21,200 MHz, licensees may deliver any of their own products and services to any receiving location;

(3) Licensees may transmit the communications of their parent corporation, or of another subsidiary of the same parent, or their own subsidiary where the party to be served is regularly engaged in any of the activities that constitute the basis for eligibility to use the frequencies assigned;

(4) Licensees may transmit the communications of other parties in accordance with § 101.135;

(5) Licensees may transmit emergency communications unrelated to their activities in accordance with § 101.205;

(6) Licensees may transmit communications on a commercial basis to eligible users, among different premises of a single eligible user, or from one eligible user to another as part of transmissions by Digital Electronic Message Service systems on the frequencies provided for this purpose;

(7) Licensees may transmit program material from one location to another;

(b) Stations licensed in this radio service shall not:

(1) Render a common carrier service of any kind. However, licensees are allowed to lease excess capacity to common carriers. In addition, Specialized Mobile Radio (SMR) licensees reclassified by the Commission as Commercial Mobile Radio Services (CMRS), that were formerly private land mobile radio service providers, may continue to utilize private operational fixed microwave systems licensed prior to April 1, 2003 for their land mobile connecting facilities.

(2) Transmit program material for use in connection with broadcasting, except as provided in paragraphs (a)(2), and (a)(7)) of this section; and/or

(3) Be used to provide the final RF link in the chain of transmission of program material to multichannel video programming distributors, except in the frequency bands 6425–6525 MHz and 17,700–18,580 MHz and on frequencies above 21,200 MHz.

[61 FR 26677, May 28, 1996, as amended at 68 FR 4961, Jan. 31, 2003; 71 FR 69052, Nov. 29, 2006; 76 FR 59574, Sept. 27, 2011]

Subpart I—Common Carrier Fixed Point-to-Point Microwave Service

§ 101.701 Eligibility.

(a) Authorizations for stations in this service will be issued to existing and proposed common carriers. Applications will be granted only in cases in which it is shown that:

(1) The applicant is legally, technically, financially and otherwise qualified to render the proposed service;

(2) There are frequencies available to enable the applicant to render a satisfactory service; and

(3) The public interest, convenience, and necessity would be served by a grant thereof.

(b) If the content is originated, selected, controlled, or otherwise substantively influenced by the applicant, licensee, or a closely affiliated entity, no station or radio frequency in this service will be authorized, or may be utilized, to transmit any closed circuit television signals or television signals other than broadcast television signals, unless:

(1) Such service is otherwise permitted for a specific length of time by grant of an acceptable petition for waiver of this rule; or

(2) Such service is otherwise permitted by a condition in the applicable instrument of authorization; or

(3) Such service is provided pursuant to applicable FCC tariff and is temporary and occasional intra-company television communication for management, network supervision, or other internal carrier functions. For purposes of this paragraph, an entity will be considered to be ''closely affiliated'' with an applicant if it is in a parent-subsidiary relationship, or both are commonly controlled, or they have any common officers or management employees.

(c) Applications for stations or frequencies that will be used primarily to relay broadcast television signals must include a certification that at least fifty percent of the customers (or points of service) on the microwave system involved, including those served through an interconnecting carrier(s), receiving applicant's service, will not be related or affiliated in any degree with the applicant, and that the proposed usage by such customers, in terms of hours of use and channels delivered, must constitute at least fifty percent of the usage of the applicant's microwave service. Applications that do not contain these certifications will be returned as unacceptable for filing.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68983, Dec. 14, 1998]

§ 101.703 Permissible communications.

Stations in this service are authorized to render any kind of communication service provided for in the legally applicable tariffs of the carrier, unless otherwise directed in the applicable instrument of authorization or limited by § 101.147 or §§ 101.111 and 101.113.

§ 101.705 Special showing for renewal of common carrier station facilities using frequency diversity.

Any application for renewal of license, for a term commencing January 1, 1975, or after, involving facilities utilizing frequency diversity must contain a statement showing compliance with § 101.103(c) or the exceptions recognized in paragraph 141 of the *First Report and Order* in Docket No. 18920 (29 FCC 2d 870). (This document is available at: Federal Communications Commission, Library (Room TW-B505), 445 Twelfth Street, SW, Washington, DC) If not in compliance, a complete statement with the reasons therefore must be submitted.

[64 FR 53242, Oct. 1, 1999]

Subpart J—Local Television Transmission Service

§ 101.801 Eligibility.

Authorizations for stations in this service will be granted to existing and proposed communication common carriers. Applications will be granted only in cases where it is shown that:

(a) The applicant is legally, financially, technically and otherwise qualified to render the proposed service;

(b) There are frequencies available to enable the applicant to render a satisfactory service; and

(c) The public interest, convenience or necessity would be served by a grant thereof.

§ 101.803 Frequencies.

(a) Frequencies in the following bands are available for assignment to television pickup and television nonbroadcast pickup stations in this service:

6,425 to 6,525 MHz. (6)
11,700 to 12,200 MHz. (3)
13,200 to 13,250 MHz. (1)
14,200 to 14,400 MHz. (8)
21,200 to 22,000 MHz. (1), (2), (4), (5)
22,000 to 23,600 MHz. (1), (2), (5)
31,000 to 31,300 MHz. (7)

Notes

(1) This frequency band is shared with fixed and mobile stations licensed under this and other parts of the Commission's Rules.

(2) This frequency band is shared with Government stations.

(3) This frequency band is shared, on a secondary basis, with stations in the broadcasting-satellite and fixed-satellite services. As of March 1, 2005, no new LTTS operators will be licensed in the 11.7–12.2 GHz band. LTTS operators authorized prior to March 1, 2005 may continue to operate in 11.7–12.2 GHz band until their license expires; no existing LTTS licenses will be renewed in the 11.7–12.2 GHz band.

(4) This frequency band is shared with stations in the earth-exploration satellite service.

(5) This frequency band is shared with the common carrier and private-operational fixed point-to-point microwave services.

(6) This band is co-equally shared with mobile stations licensed pursuant to parts 74 and 78 of this chapter, and subpart H of this part.

(7) As of June 30, 1997, frequencies in this band only are available for assignment to LMDS radio stations, except for non-LMDS radio stations authorized pursuant to applications refiled no later than June 26, 1998. Stations authorized prior to June 30, 1997, may continue to operate within the existing terms of the outstanding licenses, subject to renewal. Non-LMDS stations authorized pursuant to applications refiled no later than June 26, 1998 shall operate on an unprotected basis and subject to harmful interference from similarly licensed stations or stations licensed prior to June 30, 1997, and on a secondary basis to LMDS radio stations.

(8) The maximum power for the local television transmission service in the 14.2–14.4 GHz band is +45 dBW except that operations are not permitted within 1.5 degrees of the geostationary orbit. As of March 1, 2005, no new LTTS operators will be licensed in the 14.2–14.4 GHz band. LTTS operators authorized prior to March 1, 2005 may continue to operate in 14.2–14.4 GHz band until their license expires; no existing LTTS licenses will be renewed in the 11.7–12.2 GHz band.

(b) Communications common carriers in the Local Television Transmission Service may be assigned frequencies listed in §§ 74.602(a), 78.18(a)(6), and 78.18(a)(7) of this chapter to provide service to television broadcast stations, television broadcast network-entities, cable system operators, and cable network-entities. Frequency availability is subject to the provisions of § 74.604 of this chapter and the use of the facility is limited to the permissible uses described in §§ 74.631 and 78.11 of this chapter. Operations on these frequencies are subject to the technical provisions of part 74, subpart F, and part 78, subpart D of this chapter.

(c) [Reserved]

(d) Frequencies in the following bands are available for assignment to television STL stations in this service:

3,700 to 4,200 MHz (1)
5,925 to 6,425 MHz (1),(5)
10,700 to 11,700 MHz (1),(6)
11,700 to 12,100 MHz (3)
13,200 to 13,250 MHz (2)
21,200 to 22,000 MHz (2),(4),(7),(8)
22,000 to 23,600 MHz (2),(6),(8)
31,000 to 31,300 MHz (9)

Notes

(1) This frequency band is shared with stations in the Point to Point Microwave Radio Service and, in United States Possessions in the Caribbean area, with stations in the International Fixed Radiocommunications Services.

(2) This frequency band is shared with fixed and mobile stations licensed under this and other parts of the Commission's rules.

(3) This frequency band is shared with space stations (space to earth) in the fixed-satellite service. As of March 1, 2005, no new LTTS operators will be licensed in the 11.7–12.2 GHz band. LTTS operators authorized prior to March 1, 2005 may continue to operate in 11.7–12.2 GHz band until their license expires; no existing LTTS licenses will be renewed in the 11.7–12.2 GHz band.

(4) This frequency band is shared with Government stations.

(5) This frequency band is shared with earth stations (earth to space) in the fixed-satellite services.

(6) The band segments 10.95–11.2 and 11.45–11.7 GHz are shared with space stations (space to earth) in the fixed-satellite service.

(7) This frequency band is shared with space stations (space to earth) in the earth exploration satellite service.

(8) This frequency band is shared with the common carrier and private-operational fixed point-to-point microwave services.

(9) As of June 30, 1997, frequencies in this band only are available for assignment to LMDS radio stations, except for non-LMDS stations authorized pursuant to applications refiled no later than June 26, 1998. Stations authorized prior to June 30, 1997, may continue to operate within the existing terms of the outstanding licenses, subject to renewal. Non-LMDS stations authorized pursuant to applications refiled no later than June 26, 1998 shall operate on an unprotected basis and subject to harmful interference from each other or stations licensed prior to June 30, 1997, and on a secondary basis to LMDS radio stations.

(e) *6425 to 6525 MHz—Mobile Only*. Paired and un-paired operations permitted. Use of this spectrum for direct delivery of video programs to the general public or for multi-channel cable

distribution is not permitted. This band is co-equally shared with mobile stations licensed pursuant to parts 74 and 78 of this chapter. The following channel plans apply.

(1) 1 MHz maximum authorized bandwidth channels.

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6425.5	6475.5
6450.5	6500.5

(2) 8 MHz maximum authorized bandwidth channels.

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6430.0	6480.0
6438.0	6488.0
6446.0	6596.0
6455.0	6505.0
6463.0	6513.0
6471.0	6521.0

(3) 25 MHz maximum authorized bandwidth channels.

Transmit (or receive) (MHz)	Receive (or transmit) (MHz)
6437.5	6487.5
6462.5	6512.5

(f) The frequency 27.255 MHz in the 27.23–27.28 MHz band is allocated for assignment to microwave auxiliary stations in this service on a shared basis with other radio services. Assignments to stations on this frequency will not be protected from such interference as may be experienced from the emissions of industrial, scientific and medical equipment operating on 27.12 MHz in accordance with § 2.106 of this chapter.

[61 FR 26677, May 28, 1996, as amended at 62 FR 23168, Apr. 29, 1997; 63 FR 9448, Feb. 25, 1998; 63 FR 14039, Mar. 24, 1998; 65 FR 38332, June 20, 2000; 68 FR 4961, Jan. 31, 2003; 68 FR 12777, Mar. 17, 2003; 70 FR 4788, Jan. 31, 2005]

§ 101.805 Assignment of frequencies to mobile stations.

The assignment of frequencies to mobile stations in this service will not be limited to a single licensee within any area. However, geographical limits within which mobile units may operate may be imposed by the Commission.

§ 101.807 Transmitter power.

Stations in this service will not be authorized to use transmitters having a rated power output in excess of the limits set forth in § 101.113(b) and a standby transmitter having a rated power output in excess of that of the main transmitter with which it is associated will not be authorized. As an exception, operations on frequencies listed in §§ 74.602(a), 78.18(a)(6), and 78.18(a)(7) of this chapter are subject to the power limitations of §§ 74.636 and 78.101(a).

[68 FR 12777, Mar. 17, 2003]

§ 101.809 Bandwidth and emission limitations.

(a) Stations in this service operating on frequencies in the 27.23–27.28 MHz band will be authorized to employ only amplitude modulated or frequency modulated emission for radiotelephony. The authorization to use such emissions will be construed to include authority to employ unmodulated emission only for temporary or short periods necessary for equipment testing incident to the construction and maintenance of the station.

(b) Stations in the service operating on frequencies above 940 MHz may be authorized to use amplitude modulated, frequency modulated or pulse type of emission for radiotelephony and television. In addition, the use of unmodulated emission may be authorized in appropriate cases.

(c) The maximum bandwidths which will normally be authorized for single channel operation on frequencies below 500 MHz in this service must not exceed the limits set forth below:

Type of emission	Authorized bandwidth (kHz)
A3E	8
F3E or (G3E)	40

(d) Maximum bandwidths in the following frequency bands must not exceed the limits set forth below:

MAXIMUM AUTHORIZED

Frequency band (MHz)	Bandwidth (MHz)
3,700 to 4,200	[1] 20

MAXIMUM AUTHORIZED—Continued

Frequency band (MHz)	Bandwidth (MHz)
5,925 to 6,425	[1] 30
6,425 to 6,525	25
10,700 to 12,200	[1] [2] 40
13,200 to 13,250	25
21,200 to 23,600	[1] 50

[1] The maximum bandwidth that will be authorized for each particular frequency in this band is detailed in the appropriate frequency table in § 101.147.

[2] As of March 1, 2005, no new LTTS operators will be licensed in the 11.7–12.2 GHz band. LTTS operators authorized prior to March 1, 2005 may continue to operate in 11.7–12.2 GHz band until their license expires; no existing LTTS licensees will be renewed in the 11.7–12.2 GHz band.

(e) The bandwidths authorized on frequencies above 500 MHz must be appropriate to the type of operation in any particular case. An application requesting such authorization must fully describe the modulation, emission, and bandwidth desired and must specify the bandwidth to be occupied.

[61 FR 26677, May 28, 1996, as amended at 68 FR 4961, Jan. 31, 2003; 70 FR 4788, Jan. 31, 2005]

§ 101.811 Modulation requirements.

(a) The use of modulating frequencies higher than 3000 hertz for single channel radiotelephony or tone signaling on frequencies below 500 MHz is not authorized.

(b) When amplitude modulation is used, the modulation percentage must be sufficient to provide efficient communication and must normally be maintained above 70 percent on positive peaks, but may not exceed 100 percent on negative peaks.

(c) When phase or frequency modulation is used for single channel radiotelephony on frequencies below 500 MHz, the deviation arising from modulation may not exceed plus or minus 15 kHz from the unmodulated carrier.

(d) Each unmultiplexed radiotelephone transmitter having more than 3 watts plate power input to the final radio frequency stage and initially installed at the station in this service after September 4, 1956, must be provided with a device that will automatically prevent modulation in excess of that specified in paragraphs (b) and (c) of this section which may be caused by greater than normal audio level.

§ 101.813 Remote control operation of mobile television pickup stations.

(a) Mobile television pickup stations (including nonbroadcast) may be operated by remote control from the fixed locations for periods not to exceed 6 months.

(b) The Commission may, upon adequate showing by the licensee as to why the television pickup operations should not be conducted under a fixed station authorization, renew the authority granted under the provisions of paragraph (a) of this section.

(c) Reference should be made to § 101.125 concerning mobile station antenna height restrictions and to paragraphs (c) and (f) of § 101.131 concerning control points.

§ 101.815 Stations at temporary fixed locations.

(a) Authorizations may be issued upon proper application for the use of frequencies listed in § 101.803 by stations in the Local Television Transmission Service for rendition of temporary service to subscribers under the following conditions:

(1) When a fixed station is to remain at a single location for less than 6 months, the location is considered to be temporary.

(2) When a fixed station authorized to operate at temporary locations is installed and it subsequently becomes necessary for the station to operate from such location for more than six months, an application for a station authorization to specify the permanent location must be filed at least thirty days prior to the expiration of the six month period.

(3) The station must be used only for rendition of communication service at a remote point where the provision of wire facilities is not practicable.

(4) The antenna structure height employed at any location may not exceed the criteria set forth in § 17.7 of this chapter unless, in each instance, authorization for use of a specific maximum antenna structure height for each location has been obtained from the Commission prior to erection of the antenna. See § 101.125.

(5) Applications for such stations must comply with the provisions of § 101.21(f).

(b) Applications for authorizations to operate stations at temporary locations under the provisions of this section may be made upon FCC Form 601. Blanket applications may be submitted for the required number of transmitters.

(c) Prior coordination of mobile assignments will be in accordance with the procedures in § 101.103(d) except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68984, Dec. 14, 1998; 65 FR 38332, June 20, 2000; 68 FR 4961, Jan. 31, 2003]

§ 101.817 Notification of station operation at temporary locations.

(a) The licensee of stations authorized pursuant to § 101.813 must notify the Commission prior to each period of operation. This notification must include:

(1) The call sign, manufacturer's name, type or model number, output power and specific location of the transmitter(s);

(2) The maintenance location for the transmitter;

(3) The location of the transmitting or receiving station with which it will communicate and the identity of the correspondent operating such facilities;

(4) The exact frequency or frequencies to be used;

(5) The public interest, convenience and necessity to be served by operation of the proposed installation;

(6) The commencement and anticipated termination dates of operation from each location. In the event the actual termination date differs from the previous notification, written notice thereof promptly must be given to the Commission;

(7) Where the notification contemplates initially a service that is to be rendered for a period longer than 90 days, the notification must contain a showing as to why application should not be made for regular authorization; and

(8) A notification must include compliance with the provisions of § 101.813(c).

(b) A copy of the notification must be kept with the station license.

[61 FR 26677, May 28, 1996, as amended at 63 FR 68984 Dec. 14, 1998]

§ 101.819 Stations affected by coordination contour procedures.

In frequency bands shared with the communication-satellite service, applicants must also comply with the requirements of § 101.21.

Subpart K [Reserved]

Subpart L—Local Multipoint Distribution Service

SOURCE: 62 FR 23168, Apr. 29, 1997, unless otherwise noted.

§ 101.1001 Eligibility.

Any entity, other than one precluded by § 101.7 and by § 101.1003, is eligible for authorization to provide Local Multipoint Distribution Service (LMDS) under this subpart. Authorization will be granted upon proper application filed under the rules in this part.

§ 101.1005 Frequencies available.

(a) The following frequencies are available for assignment to LMDS in two license blocks:

Block A of 1,150 MHz

27,500–28,350 MHz
29,100–29,250 MHz
31,075–31,225 MHz

Block B of 150 MHz

31,000–31,075 MHz
31,225–31,300 MHz

(b) In Block A licenses, the frequencies are authorized as follows:

(1) 27,500–28,350 MHz is authorized on a primary protected basis and is shared with Fixed Satellite Service (FSS) systems.

(2) 29,100–29,250 MHz is shared on a co-primary basis with feeder links for non-geostationary orbit Mobile Satellite Service (NGSO/MSS) systems in the band and is limited to LMDS hub-

to-subscriber transmissions, as provided in §§ 25.257 and 101.103(h).

(3) 31,075–31,225 MHz is authorized on a primary protected basis and is shared with private microwave point-to-point systems licensed prior to March 11, 1997, as provided in § 101.103(b).

(c) In Block B licenses, the frequencies are authorized as follows:

(1) On a primary protected basis if LMDS shares the frequencies with systems licensed as Local Television Transmission Service (LTTS) licensed prior to March 11, 1997, as provided in § 101.103(b).

(2) On a co-equal basis with systems not licensed as LTTS prior to March 11, 1997, as provided in § 101.103(g).

§ 101.1007 Geographic service areas and number of licenses.

LMDS service areas are Basic Trading Areas (BTAs) as defined in the Rand McNally 1992 Commercial Atlas & Marketing Guide, 123rd Edition, at pages 38–39, that identifies 487 BTAs based on the 50 States and as defined to include the BTA-like areas of the United States Virgin Islands, American Samoa, Guam, Mayaguez/Aguadilla-Ponce, Puerto Rico, San Juan, Puerto Rico, and the Commonwealth of Northern Marinas, for a total of 493 BTAs.

§ 101.1009 System operations.

(a) The licensee may construct and operate any number of fixed stations anywhere within the area authorized by the license without prior authorization, except as follows:

(1) A station would be required to be individually licensed if:

(i) International agreements require coordination;

(ii) Submission of an Environmental Assessment is required under § 1.1307 of this chapter.

(iii) The station would affect areas identified in § 1.924 of this chapter.

(2) Any antenna structure that requires notification to the Federal Aviation Administration (FAA) must be registered with the Commission prior to construction under § 17.4 of this chapter.

(b) Whenever a licensee constructs or makes system changes as described in paragraph (a) of this section, the licensee is required to notify the Commission within 30 days of the change under § 1.947 of this chapter and include a statement of the technical parameters of the changed station.

[62 FR 23168, Apr. 29, 1997, as amended at 63 FR 68984, Dec. 14, 1998; 69 FR 17959, Apr. 6, 2004]

§ 101.1011 Construction requirements and criteria for renewal expectancy.

(a) LMDS licensees must make a showing of ''substantial service'' in their license area within ten years of being licensed. ''Substantial'' service is defined as service which is sound, favorable, and substantially above a level of mediocre service which might minimally warrant renewal. Failure by any licensee to meet this requirement will result in forfeiture of the license and the licensee will be ineligible to regain it.

(b) A renewal applicant involved in a comparative renewal proceeding shall receive a preference, commonly referred to as a renewal expectancy, that is the most important comparative factor to be considered in the proceeding as long as the applicant's past record for the relevant license period demonstrates that:

(1) The renewal applicant has provided ''substantial'' service during its past license term; and

(2) The renewal applicant has substantially complied with applicable FCC rules, policies, and the Communications Act of 1934, as amended.

(c) In order to establish its right to a renewal expectancy, an LMDS renewal applicant involved in a comparative renewal proceeding must submit a showing explaining why it should receive a renewal expectancy. At a minimum, this showing must include:

(1) A description of its current service in terms of geographic coverage and population served:

(2) An explanation of its record of expansion, including a timetable of new construction to meet changes in demand for service:

(3) A description of its investments in its LMDS system; and

(4) Copies of all FCC orders finding the licensee to have violated the Communications Act or any FCC rule or

policy; and a list of any pending proceedings that relate to any matter described in this paragraph.

(d) In making its showing of entitlement to a renewal expectancy, a renewal applicant may claim credit for any system modification applications that were pending on the date it filed its renewal application. Such credit will not be allowed if the modification application is dismissed or denied.

§ 101.1013 Permissible communications services.

(a) Authorizations for stations in the Local Multipoint Distribution Service will be granted to provide services on a common carrier basis or a non-common carrier basis or on both a common carrier and non-common carrier basis in a single authorization.

(b) Stations may render any kind of communications service consistent with the Commission's rules and the regulatory status of the station to provide services on a common carrier or non-common carrier basis.

(c) An applicant or licensee may submit a petition at any time requesting clarification of the regulatory status required to provide a specific communications service.

§ 101.1017 Requesting regulatory status.

(a) *Initial applications*. An applicant will specify on FCC Form 601 if it is requesting authorization to provide services on a common carrier basis, a non-common carrier basis, or on both a common carrier and non-common carrier basis.

(b) *Amendment of pending applications*. (1) Any pending application may be amended to:

(i) Change the carrier status requested, or

(ii) Add to the pending request in order to obtain both common carrier and non-common carrier status in a single license.

(2) Amendments to change, or add to, the carrier status in a pending application are minor amendments pursuant to § 1.927 of this chapter.

(c) *Modification of license*. (1) A licensee may modify a license to:

(i) Change the carrier status authorized, or

(ii) Add to the status authorized in order to obtain both common carrier and non-common carrier status in a single license.

(2) Applications to change, or add to, the carrier status in a license are modifications not requiring prior Commission authorization filed under § 1.927 of this chapter. If the change results in the discontinuance, reduction, or impairment of an existing service, the licensee is also governed by § 101.305(b) or (c) and submits the application under § 1.927 of this chapter in conformance with the time frames and requirements of §§ 101.305 (b) or (c).

[62 FR 23168, Apr. 29, 1997, as amended at 63 FR 68984, Dec. 14, 1998]

Subpart M—Competitive Bidding Procedures for LMDS

SOURCE: 62 FR 23172, Apr. 29, 1997, unless otherwise noted.

§ 101.1101 LMDS service subject to competitive bidding.

Mutually exclusive initial applications for LMDS licenses are subject to competitive bidding procedures. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 46379, July 9, 2002]

§§ 101.1102–101.1105 [Reserved]

§ 101.1107 Bidding credits for very small businesses, small businesses and entrepreneurs.

(a) A winning bidder that qualifies as a very small business, as defined in § 101.1112, or a consortium of very small businesses may use a bidding credit of 45 percent to lower the cost of its winning bid.

(b) A winning bidder that qualifies as a small business, as defined in § 101.1112, or a consortium of small businesses may use a bidding credit of 35 percent to lower the cost of its winning bid.

(c) A winning bidder that qualifies as an entrepreneur, as defined in § 101.1112, or a consortium of entrepreneurs may use a bidding credit of 25 percent to lower the cost of its winning bid.

(d) The bidding credits referenced in paragraphs (a), (b) and (c) of this section are not cumulative.

[68 FR 43002, July 21, 2003]

§ 101.1109 Records maintenance.

All winning bidders qualifying as very small businesses, small businesses or entrepreneurs shall maintain at their principal place of business an updated file of ownership, revenue, and asset information, including any document necessary to establish eligibility as a very small business, small business or entrepreneur. Licensees (and their successors-in-interest) shall maintain such files for the term of the license. Applicants that do not obtain the license(s) for which they applied shall maintain such files until the grant of such license(s) is final, or one year from the date of the filing of their short-form application (FCC Form 175), whichever is earlier.

[68 FR 43002, July 21, 2003]

§ 101.1111 Partitioning and disaggregation.

(a) *Definitions*. *Disaggregation*. The assignment of discrete portions or ''blocks'' of spectrum licensed to a geographic licensee or qualifying entity.

Partitioning. The assignment of geographic portions of a licensee's authorized service area along geopolitical or other boundaries.

(b) *Eligibility*. (1) Parties seeking approval for partitioning and disaggregation shall request an authorization for partial assignment of a license pursuant to § 101.53. Parties shall submit the forms set forth in § 101.15(e).

(2) Licensees may apply to partition their licensed geographic service area or disaggregate their licensed spectrum at any time following the grant of their licenses.

(c) *Technical standards*—(1) *Partitioning*. In the case of partitioning, requests for authorization for partial assignment of a license must include, as an attachment, a description of the partitioned service area. The partitioned service area shall be defined by coordinate points at every 3 degrees along the partitioned service area unless an FCC recognized service area is utilized (*i.e.*, Major Trading Area, Basic Trading Area, Metropolitan Service Area, Rural Service Area or Economic Area) or county lines are followed. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83). In the case where an FCC recognized service area or county lines are utilized, applicants need only list the specific area(s) (through use of FCC designations or county names) that constitute the partitioned area. In such partitioning cases where an unjust enrichment payment is owed the Commission, the request for authorization for partial assignment of a license must include, as an attachment, a calculation of the population of the partitioned service area and the licensed geographic service area.

(2) *Disaggregation*. Spectrum may be disaggregated in any amount.

(3) *Combined partitioning and disaggregation*. The Commission will consider requests for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(d) *License term*. The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in § 101.67 of this chapter.

(e) *Construction requirements*. Applications requesting approval for partitioning or disaggregation must include a certification by each party that it will satisfy the construction requirement set forth in § 101.1011 of this chapter. Failure by a party to meet its respective construction requirement will result in the automatic cancellation of its license without further Commission action.

[63 FR 26507, May 13, 1998]

§ 101.1112 Definitions.

(a) *Scope*. The definitions in this section apply to §§ 101.1101 through 101.1112, unless otherwise specified in those sections.

(b) *Very small business*. A very small business is an entity that, together with its affiliates and controlling interests, has average gross revenues for

the three preceding years of not more than $15 million.

(c) *Small business.* A small business is an entity that, together with its affiliates and controlling interests, has average gross revenues for the three preceding years of more than $15 million but not more than $40 million.

(d) *Entrepreneur.* An entrepreneur is an entity that, together with its affiliates and controlling interests, has average gross revenues for the three preceding years of more than $40 million but not more than $75 million.

[67 FR 46380, July 9, 2002, as amended at 68 FR 43002, July 21, 2003]

Subpart N—Competitive Bidding Procedures for the 38.6–40.0 GHz Band

SOURCE: 63 FR 6106, Feb. 6, 1998, unless otherwise noted.

§ 101.1201 38.6–40.0 GHz subject to competitive bidding.

Mutually exclusive initial applications for 38.6–40.0 GHz band licenses are subject to competitive bidding. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 46380, July 9, 2002]

§§ 101.1202–101.1207 [Reserved]

§ 101.1208 Bidding credits for small businesses.

A winning bidder that qualifies as a small business or a consortium of small businesses, (as defined in § 101.1209(b)(1)(i) may use a bidding credit of 25 percent to lower the cost of its winning bid on any of the licenses in this part. A winning bidder that qualifies as a very small business or a consortium of very small businesses, as defined in § 101.1209(b)(1)(ii), may use a bidding credit of 35 percent to lower the cost of its winning bid on any of the licenses in this part.

[67 FR 46380, July 9, 2002]

§ 101.1209 Definitions.

(a) *Scope.* The definitions in this section apply to §§ 101.1201 through 101.1209, unless otherwise specified in those sections.

(b) *Small business and very small business.* (1) A small business is an entity that together with its affiliates and persons or entities that hold attributable interests in such entity and their affiliates, has average gross revenues that are not more than $40 million for the preceding three years.

(2) A very small business is an entity that together with its affiliates and persons or entities that hold attributable interests in such entity and their affiliates, has average gross revenues that are not more than $15 million for the preceding three years.

[63 FR 6106, Feb. 6, 1998; 63 FR 10781, Mar. 5, 1998, as amended at 67 FR 46380, July 9, 2002; 68 FR 43002, July 21, 2003]

Subpart O—Multiple Address Systems

SOURCE: 65 FR 17450, Apr. 3, 2000, unless otherwise noted.

GENERAL PROVISIONS

§ 101.1301 Scope.

This subpart sets out the regulations governing the licensing and operation of Multiple Address Systems (MAS). The rules in this subpart are to be used in conjunction with applicable requirements contained elsewhere in the Commission's rules, such as those requirements contained in parts 1 and 22 of this chapter.

§ 101.1303 Eligibility.

Authorizations for stations in this service will be granted in cases where it is shown that:

(a) The applicant is legally, financially, technically and otherwise qualified to render the proposed service;

(b) There are frequencies available to enable the applicant to render a satisfactory service; and

(c) The public interest, convenience or necessity would be served by a grant thereof.

§ 101.1305 Private internal service.

A private internal service is a service where entities utilize frequencies purely for internal business purposes or

public safety communications and not on a for-hire or for-profit basis.

§ 101.1307 Permissible communications.

MAS users may engage in terrestrial point-to-point and point-to-multi-point fixed and limited mobile operations.

[66 FR 35111, July 3, 2001]

§ 101.1309 Regulatory status.

(a) The Commission will rely on each applicant to specify on FCC Form 601 the type of service or services it intends to provide. Each application for authorization in the bands designated for private internal use must include a certification stating why the application satisfies the definition of private internal use.

(b) Any interested party may challenge the regulatory status granted an MAS licensee.

SYSTEM LICENSE REQUIREMENTS

§ 101.1311 Initial EA license authorization.

(a) Winning bidders must file an application (FCC Form 601) for an initial authorization in each market and frequency block.

(b) Blanket licenses are granted for each market and frequency block. Applications for individual sites are not required and will not be accepted, except as specified in § 101.1329.

§ 101.1313 License term.

The license term for stations authorized under this subpart is ten years from the date of original issuance or renewal.

§ 101.1315 Service areas.

In the frequency bands not licensed on a site-by-site basis, the geographic service areas for MAS are Economic Areas (EAs) which are defined by the Department of Commerce's Bureau of Economic Analysis, as modified by the Commission. The EAs will consist of 176 areas, which includes Guam and the Northern Marianas Islands, Puerto Rico and the United States Virgin Islands, American Samoa, and the Gulf of Mexico.

[66 FR 35111, July 3, 2001]

§ 101.1317 Competitive bidding procedures for mutually exclusive MAS EA applications.

Mutually exclusive initial applications for licenses in the portions of the MAS bands licensed on a geographic area basis are subject to competitive bidding procedures. The general competitive bidding procedures set forth in part 1, subpart Q of this chapter will apply unless otherwise provided in this subpart.

[67 FR 46380, July 9, 2002]

§ 101.1319 Competitive bidding provisions.

For the purpose of establishing eligibility requirements and bidding credits for competitive bidding for MAS licenses, pursuant to § 1.2110 of this chapter, the following definitions apply:

(a) *Eligibility for small business provisions*. (1) A small business is an entity that, together with its affiliates and persons or entities that hold interests in such entity and their affiliates, has average gross revenues for the preceding three years not to exceed $15 million, as determined pursuant to § 1.2110 of this chapter.

(2) A very small business is an entity that, together with its affiliates and persons or entities that hold interests in such entity and their affiliates, has average gross revenues for the preceding three years not to exceed $3 million, as determined pursuant to § 1.2110 of this chapter.

(b) *Bidding credits*. A winning bidder that qualifies as a small business, as defined in this section, or a consortium of small businesses, may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as a very small business, as defined in this section, or a consortium of very small businesses, may use the bidding credit specified in § 1.2110(f)(2)(i) of this chapter.

[65 FR 17450, Apr. 3, 2000, as amended at 67 FR 46380, July 9, 2002]

§ 101.1321 License transfers.

(a) An MAS system license acquired through competitive bidding procedures (including licenses obtained in cases of no mutual exclusivity), together with all appurtenances may be

transferred, assigned, sold, or given away only in accordance with the provisions and procedures set forth in § 1.2111 of this chapter.

(b) An MAS system license obtained through site-based licensing procedures, together with all appurtenances may be transferred, assigned, sold, or given away, to any other entity in accordance with the provisions and procedures set forth in § 1.948 of this chapter.

§ 101.1323 Spectrum aggregation, disaggregation, and partitioning.

(a) *Eligibility*. (1) Parties seeking approval for partitioning and disaggregation shall request from the Commission an authorization for partial assignment of license. Geographic area licensees may participate in aggregation, disaggregation, and partitioning within the bands licensed on a geographic area basis. Site-based licensees may aggregate spectrum in any MAS bands, but may not disaggregate their licensed spectrum or partition their licensed sites.

(2) Eligible MAS licensees may apply to the Commission to partition their licensed geographic service areas to eligible entities and are free to determine the portion of their service areas to be partitioned. Eligible MAS licensees may aggregate or disaggregate their licensed spectrum at any time following the grant of a license.

(b) *Technical standards*—(1) *Aggregation*. (i) There is no limitation on the amount of spectrum that an MAS licensee may aggregate.

(ii) Spectrum licensed to MAS licensees does not count toward the CMRS spectrum cap discussed in § 20.6 of this chapter.

(2) *Disaggregation*. Spectrum may be disaggregated in any amount. A licensee need not retain a minimum amount of spectrum.

(3) *Partitioning*. In the case of partitioning, applicants and licensees must file FCC Form 603 pursuant to § 1.948 of this chapter and list the partitioned service area on a schedule to the application. The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude, and must be based upon the 1983 North American Datum (NAD83).

(4) *Combined partitioning and disaggregation*. The Commission will consider requests from geographic area licensees for partial assignment of licenses that propose combinations of partitioning and disaggregation.

(c) *Construction requirements*—(1) *Disaggregation*. Partial assignors and assignees for license disaggregation have two options to meet construction requirements. Under the first option, the disaggregator and disaggregatee would certify that they each will share responsibility for meeting the applicable construction requirements set forth in § 101.1325 for the geographic service area. If parties choose this option and either party fails to meet the applicable construction requirements, both licenses would be subject to forfeiture at renewal. The second option allows the parties to agree that either the disaggregator or disaggregatee would be responsible for meeting the requirements in § 101.1325 for the geographic service area. If parties choose this option, and the party responsible for meeting the construction requirement fails to do so, only the license of the non-performing party would be subject to forfeiture at renewal.

(2) *Partitioning*. Partial assignors and assignees for license partitioning have two options to meet construction requirements. Under the first option, the partitionor and partitionee would each certify that they will independently satisfy the applicable construction requirements set forth in § 101.1325 for their respective partitioned areas. If either licensee fails to meet its requirement in § 101.1325, only the non-performing licensee's renewal application would be subject to dismissal. Under the second option, the partitionor certifies that it has met or will meet the requirement in § 101.1325 for the entire market. If the partitionor fails to meet the requirement in § 101.1325, however, only its license would be subject to forfeiture at renewal.

(3) All applications requesting partial assignments of license for partitioning or disaggregation must certify in the appropriate portion of the application which construction option is selected.

(4) Responsible parties must submit supporting documents showing compliance with the respective construction requirements within the appropriate construction benchmarks set forth in § 101.1325.

(d) *License term.* The license term for a partitioned license area and for disaggregated spectrum shall be the remainder of the original licensee's license term as provided for in § 101.1313.

[65 FR 17450, Apr. 3, 2000, as amended at 67 FR 45380, July 9, 2002]

SYSTEM REQUIREMENTS

§ 101.1325 Construction requirements.

(a) Incumbent and site-based licenses are subject to the construction requirements set forth in § 101.63.

(b) Each MAS EA licensee must provide service to at least one-fifth of the population in its service area or ''substantial service'' within five years of the license grant. In addition, MAS EA licensees must make a showing of continued ''substantial service'' within ten years of the license grant. Licensees must file maps and other supporting documents showing compliance with the respective construction requirements within the appropriate five- and ten-year benchmarks of the date of their initial licenses.

(c) Failure by any licensee to meet these requirements will result in forfeiture or non-renewal of the initial license, and the licensee will be ineligible to regain it.

[65 FR 17450, Apr. 3, 2000, as amended at 68 FR 4961, Jan. 31, 2003]

§ 101.1327 Renewal expectancy for EA licensees.

(a) A renewal applicant shall receive a renewal expectancy at the end of the license period as long as the applicant:

(1) Demonstrates that the licensee has provided continued ''substantial service,'' *i.e.*, service which is sound, favorable, and substantially above a level of mediocre service which just might minimally warrant renewal, during its past license term;

(2) Demonstrates that the licensee has substantially complied with applicable Commission Rules, policies, and the Communications Act of 1934, as amended;

(3) Provides an explanation of the licensee's record of expansion, including a timetable of the construction of new facilities to meet changes in demand for services provided by the licensee; and (4) Provides a description of investments made by the licensee in its system.

(b) In determining whether a renewal applicant has complied with the ''substantial service'' requirement by the end of the ten-year initial license term, the Commission may consider factors such as:

(1) Whether the licensee is offering a specialized or technologically sophisticated service that does not require a high level of coverage to be of benefit to customers; and

(2) Whether the licensee's operations service niche markets or focus on serving populations outside of areas served by other licensees. The ''substantial service'' requirement can, however, be met in other ways, and the Commission will review each licensee's showing on a case-by-case basis.

(c) A ''substantial service'' assessment will be made at renewal pursuant to the procedures contained in § 1.949 of this chapter.

[65 FR 17450, Apr. 3, 2000]

§ 101.1329 EA Station license, location, modifications.

EA licensees may construct master and remote stations anywhere inside the area authorized in their licenses, without prior approval, so long as the Commission's technical and other Rules are complied with, except that individual licenses are required for any master station that:

(a) Requires the submission of an environmental assessment under § 1.1307 of this chapter;

(b) Requires international coordination; or

(c) The station would affect areas identified in § 1.924 of this chapter.

[65 FR 17450, Apr. 3, 2000, as amended at 69 FR 17959, Apr. 6, 2004]

§ 101.1331 Treatment of incumbents.

(a) Any MAS station licensed by the Commission prior to July 1, 1999 in the 928.0–928.85 MHz/952.0–952.85 MHz/956.25–956.45 MHz and 928.85–929.0 MHz/959.85–

960.0 MHz bands, as well as assignments or transfers of such stations approved by the Commission and consummated as of January 19, 2000, shall be considered incumbent.

(b) Incumbent operators in the 928.0–928.85 MHz/952.0–952.85 MHz/956.25–956.45 MHz bands are grandfathered as of January 19, 2000, and may continue to operate and expand their systems pursuant to the interference protection and co-channel spacing criteria contained in § 101.105.

(1) MAS operators are prohibited from acquiring additional frequencies in the 928.0–928.85 MHz/952.0–952.85 MHz/956.25–956.45 MHz bands and the 932.25625–932.49375 MHz/941.25625–941.49375 MHz bands for the purpose of expanding private carrier service and from changing the use of their frequencies in any manner that is inconsistent with this part. Refer to § 101.147 for designated uses.

(2) Incumbent operators in the 928.0–928.85 MHz/952.0–952.85 MHz/956.25–956.45 MHz bands will include incumbents as defined in § 101.1331(a), as well as, their transferees and/or assignees and the successors of the transferees and/or assignees and retain their grandfathered status, provided that the use of the MAS frequencies remains unchanged from that of the transferor and/or assignor of the license.

(c) Incumbent operators in the 928.85–929.0/959.85–960.0 MHz bands are grandfathered as of January 19, 2000, and may expand their systems provided that the signal level of the additional transmitter(s) does not increase the composite contour that occurs at a 40.2 kilometer (25-mile) radius from the center of each master station transmitter site. Incumbent operators and geographic area licensees may negotiate alternative criteria.

(d) The frequencies associated with incumbent authorizations in the 928/959 MHz bands that have cancelled automatically or otherwise been recovered by the Commission will automatically revert to the applicable EA licensee.

(e) The frequencies associated with incumbent authorizations in the 928/952/956 MHz bands that have cancelled automatically will revert to the Commission.

[65 FR 17450, Apr. 3, 2000, as amended at 66 FR 35111, July 3, 2001]

§ 101.1333 Interference protection criteria.

(a) *Frequency coordination*. All EA licensees are required to coordinate their frequency usage with co-channel adjacent area licensees and all other affected parties.

(b) EA licensees are prohibited from exceeding a signal strength of 40 dBμV/m at their service area boundaries, unless a higher signal strength is agreed to by all affected co-channel, adjacent area licensees.

(c) EA licensees are prohibited from exceeding a signal strength of 40 dBμV/m at incumbent licensees' 40.2 kilometer (25-mile) radius composite contour specified in § 101.1331(c).

(d) In general, licensees shall comply with the appropriate coordination agreements between the United States and Canada and the United States and Mexico concerning cross-border sharing and use of the applicable MAS frequencies.

(1) *Canada—932.0–932.25 MHz and 941.0–941.25 MHz*. (i) Within Lines A, B, C, and D, as defined in § 1.928(e) of this chapter, along the U.S./Canada border, U.S. stations operating in the 932.0–932.25 MHz and 941.0–941.25 MHz bands are on a secondary basis and may operate provided that they shall not transmit a power flux density (PFD) at the border greater than -100 dBW/m^2 nor -94 dBW/m^2, respectively. The U.S. has full use of the frequencies in these regions up to the border in the bands 932.25–932.50 MHz and 941.25–941.50 MHz, and Canadian stations may operate on a secondary basis provided they do not exceed the respective PFDs shown above. PFD can be determined using the following formula: PFD (dBW/m^2) = 10 log [EIRP/4π(D^2], where EIRP is in watts, D is in meters, and the power is relative to an isotropic radiator. The technical parameters are also limited by tables 1 and 2:

TABLE 1—MAXIMUM RADIATED POWER

Class of station	Band MHz	Maximum EIRP		Maximum ERP[1]	
		Watts	dBW	Watts	dBW
Master	941.0–941.5	1000	30	600	27.8
Fixed Remote and Master	932.0–932.5	50	17	30	14.8

[1] Where ERP = EIRP/1.64.≤

(ii) Maximum antenna height above average terrain for master stations operating at a maximum power shall not exceed 150 meters. Above 150 meters, the power of master stations shall be in accordance with following table:

TABLE 2—ANTENNA HEIGHT—POWER REDUCTION TABLE

Antenna height above average terrain (meters)	EIRP		ERP	
	Watts	dBW	Watts	dBW
Above 305	200	23	120	20.8
Above 275 to 305	250	24	150	21.8
Above 245 to 275	315	25	190	22.8
Above 215 to 245	400	26	240	23.8
Above 180 to 215	500	27	300	24.8
Above 150 to 180	630	28	380	25.8

NOTE TO TABLE 2: This information is from the *Arrangement between the Federal Communications Commission and the National Telecommunications and Information Administration of the United States of America, and Industry Canada concerning the use of the bands 932 to 935 MHz and 941 to 944 MHz along the United States-Canada border* signed in 1994. This agreement also lists grandfathered stations that must be protected.

(2) *Canada—928–929 MHz and 952–960 MHz*. Between Lines A and B and between Lines C and D, as defined in §1.928(e) of this chapter, along the U.S./Canada border, U.S. stations operating in the 928.50–928.75 MHz and 952.50–952.75 MHz bands are on an unprotected basis and may operate provided that they shall not transmit a power flux density (PFD) at or beyond the border greater than −100 dBW/m². The U.S. has full use of the frequencies in these regions up to the border in the bands 928.25–928.50 MHz and 952.25–952.50 MHz, and Canadian stations may operate on an unprotected basis provided they do not exceed the PFD above. Frequencies in the bands 928.00–928.25 MHz, 928.75–929.00 MHz, 952.00–952.25 MHz, and 952.75–952.85 MHz are available for use on a coordinated, first-in-time, shared basis subject to protecting grandfathered stations. New stations must provide a minimum of 145 km (90 miles) separation or alternatively limit the actual PFD of the proposed station to −100 dBW/m², at the existing co-channel master stations of the other country, or as mutually agreed upon on a case-by-case basis. Coordination is not required if the PFD at the border is lower than −100 dBW/m². The technical criteria are also limited by the following:

Maximum EIRP for master stations in the MHz band: 1000 watts (30 dBW) 952–953

Maximum EIRP for fixed remote stations or stations in the 928–929 MHz band: 50 watts (17 dBW) master

Maximum EIRP for mobile master stations: 25 watts (14 dBW)

Maximum antenna height above average master or control stations: 152 m at 1000 watts terrain for EIRP, power derated in accordance with the following table:

Antenna height above average terrain (m)	EIRP	
	Watts	dBm
Above 305	200	53
Above 275 to 305	250	54
Above 244 to 274	315	55
Above 214 to 243	400	56
Above 183 to 213	500	57
Above 153 to 182	630	58
Below 152	1000	60

NOTE TO TABLE IN PARAGRAPH (d)(2): This information is from the *Arrangement between the Department of Communications of Canada and the Federal Communications Commission of the United States of America Concerning the Use of the Bands 928 to 929 MHz and 952 to 953 MHz along the United States-Canada Border* signed in 1991. This agreement also lists grandfathered stations that must be protected.

(3) *Mexico*. Within 113 kilometers of the U.S./Mexico border, U.S. stations operating in the 932.0–932.25 MHz and 941.0–941.25 MHz bands are on a secondary basis (non-interference to Mexican primary licensees) and may operate provided that they shall not transmit a power flux density (PFD) at or beyond the border greater than −100 dBW/m². Upon notification from the Commission, U.S. licensees must take proper measures to eliminate any harmful interference caused to Mexican primary assignments. The U.S. has full use of the frequencies in these regions up to the border in the bands

932.25–932.50 MHz and 941.25–941.50 MHz, and Mexican stations may operate on a secondary basis (non-interference to U.S. primary licensees) provided they do not exceed the PFD shown above. Stations using the 932–932.5 MHz band shall be limited to the maximum effective isotropic radiated power of 50 watts (17 dBW). Stations using the 941–941.5 MHz band shall meet the limits in the following table:

Antenna height above average mean sea level (meters)	EIRP	
	Watts	dBW
Above 305	200	23
Above 274 to 305	250	24
Above 243 to 274	315	25
Above 213 to 243	400	26
Above 182 to 213	500	27
Above 152 to 182	630	28
Up to 152	1000	30

NOTE TO TABLE IN PARAGRAPH (d)(3): This information is from the *Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Allocation and Use of Frequency Bands by Terrestrial Non-Broadcasting Radiocommunication Services Along the Common Border, Protocol #6 Concerning the Allotment and Use of Channels in the 932–932.5 and 941–941.5 MHz Bands for Fixed Point-to-Multipoint Services Along the Common Border* signed in 1994.

[65 FR 17450, Apr. 3, 2000, as amended at 68 FR 4961, Jan. 31, 2003]

Subpart P—Multichannel Video Distribution and Data Service Rules for the 12.2–12.7 GHz Band

SOURCE: 69 FR 31746, June 7, 2004, unless otherwise noted.

§ 101.1401 Service areas.

Multichannel Video Distribution and Data Service (MVDDS) is licensed on the basis of Designated Market Areas (DMAs). The 214 DMA service areas are based on the 210 Designated Market Areas delineated by Nielsen Media Research and published in its publication entitled U.S. Television Household Estimates, September 2002, plus four FCC-defined DMA-like service areas.

(a) Alaska—Balance of State (all geographic areas of Alaska not included in Nielsen's three DMAs for the state: Anchorage, Fairbanks, and Juneau);

(b) Guam and the Northern Mariana Islands;

(c) Puerto Rico and the United States Virgin Islands; and

(d) American Samoa.

§ 101.1403 Broadcast carriage requirements.

MVDDS licensees are not required to provide all local television channels to subscribers within its area and thus are not required to comply with the must-carry rules, nor the local signal carriage requirements of the *Rural Local Broadcast Signal Act*. See Multichannel Video and Cable Television Service Rules, Subpart D (Carriage of Television Broadcast Signals), 47 CFR 76.51–76.70. If an MVDDS licensee meets the statutory definition of Multiple Video Programming Distributor (MVPD), the retransmission consent requirement of section 325(b)(1) of the Communications Act of 1934, as amended (47 U.S.C. 325(b)(1)) shall apply to that MVDDS licensee. Any MVDDS licensee that is an MVPD must obtain the prior express authority of a broadcast station before retransmitting that station's signal, subject to the exceptions contained in section 325(b)(2) of the Communications Act of 1934, as amended (47 U.S.C. 325(b)(2)). Network nonduplication, syndicated exclusivity, sports blackout, and leased access rules shall not be imposed on MVDDS licensees.

§ 101.1405 Channeling plan.

Each license shall have one spectrum block of 500 megahertz per geographic area that can be divided into any size channels. Disaggregation is not allowed.

§ 101.1407 Permissible operations for MVDDS.

MVDDS licensees must use spectrum in the 12.2–12.7 GHz band for any digital fixed non-broadcast service (broadcast services are intended for reception of the general public and not on a subscribership basis) including one-way direct-to-home/office wireless service. Mobile and aeronautical services are not authorized. Two-way services may be provided by using other spectrum or media for the return or upstream path.

§ 101.1409 Treatment of incumbent licensees.

Terrestrial private operational fixed point-to-point licensees in the 12.2–12.7 GHz band which were licensed prior to MVDDS or NGSO FSS satellite stations are incumbent point-to-point stations and are not entitled to protection from harmful interference caused by later MVDDS or NGSO FSS entrants in the 12.2–12.7 GHz band, except for public safety stations which must be protected. MVDDS and NGSO FSS operators have the responsibility of resolving any harmful interference problems that their operations may cause to these public safety incumbent point-to-point operations in the 12.2–12.7 GHz band. Incumbent public safety terrestrial point-to-point licensees may only make minor changes to their stations without losing this protection. This does not relieve current point-to-point licensees of their obligation to protect BSS operations in the subject frequency band. All point-to-point applications, including low-power operations, for new licenses, major amendments to pending applications, or major modifications to existing licenses for the 12.2–12.7 GHz band are no longer accepted except for renewals and changes in ownership. See § 1.929 of this chapter for definitions of major and minor changes.

§ 101.1411 Regulatory status and eligibility.

(a) MVDDS licensees are permitted to provide one-way video programming and data services on a non-common carrier and/or on a common carrier basis. MVDDS is not required to be treated as a common carrier service unless it is providing non-Internet voice and data services through the public switched network.

(b) MVDDS licensees in the 12.2–12.7 GHz band are subject to the requirements set forth in § 101.7.

(c) Any entity, other than one precluded by §§ 101.7 and 101.1412, is eligible for authorization to provide MVDDS under this part. Authorization will be granted upon proper application filing in accordance with the Commission's rules.

§ 101.1412 MVDDS eligibility restrictions for cable operators.

(a) Eligibility for MVDDS license. No cable operator, nor any entity owning an attributable interest in a cable operator, shall have an attributable interest in an MVDDS license if such cable operator's service area significantly overlaps the MVDDS license area, as ''significantly overlaps'' is defined in paragraph (e) of this section.

(b) Definition of cable operator. For the purposes of paragraph (a) of this section, the term ''cable operator'' means a company that is franchised to provide cable service, as defined in 47 CFR 76.5(ff) of this chapter, in all or part of the MVDDS license area.

(c) For the purpose of this section, the term ''MVPD household'' refers to a household that subscribes to one or more Multichannel Video Program Distributors (MVPDs), as defined in 47 CFR 76.1000(e) of this chapter.

(d) Waiver of restriction. Upon completion of the initial award of an MVDDS license, a cable operator may petition for a waiver of the restriction on eligibility based upon a showing that changed circumstances or new evidence indicate that no significant likelihood of substantial competitive harm will result from the operator retaining an attributable interest in the MVDDS license.

(e) Significant overlap with service area. For purposes of paragraph (a) of this section, significant overlap occurs when a cable operator's subscribers in the MVDDS license area make up thirty-five percent or more of the MVPD households in that MVDDS license area.

(f) Definition of attributable interest. For purposes of paragraph (a) of this section, an entity shall be considered to have an attributable interest in a cable operator or MVDDS licensee pursuant to the following criteria:

(1) A controlling interest shall constitute an attributable interest. Controlling interest means majority voting equity ownership, any general partnership interest, or any means of actual working control (including negative control) over the operation of the entity, in whatever manner exercised.

(2) Any general partnership interest in a partnership;

(3) Partnership and similar ownership interests (including limited partnership interests) amounting to 20 percent or more of the total partnership interests, calculated according to both the percentage of equity paid in and the percentage of distribution of profits and losses;

(4) Any stock interest amounting to 20 percent or more of the outstanding voting stock of an entity;

(5) Any voting or non-voting stock interest, amounting to 20 percent or more of the total outstanding stock of an entity;

(6) Stock interests held in trust that exceed the limit set forth in paragraph (f) of this section shall constitute an attributable interest of any person who holds or shares the power to vote such stock, of any person who has the sole power to sell such stock, and, in the case of stock held in trust, of any person who has the right to revoke the trust at will or to replace the trustee at will. If the trustee has a familial, personal, or extra-trust business relationship to the grantor or the beneficiary, the stock interests held in trust shall constitute an attributable interest of such grantor or beneficiary, as appropriate.

(7) Debt and interests such as warrants and convertible debentures, options, or other interests (except nonvoting stock) with rights of conversion to voting interests shall not constitute attributable interests unless and until conversion is effected.

(8) An interest in a Limited Liability Company (LLC) or Registered Limited Liability Partnership (RLLP) amounting to 20 percent or more, shall constitute an attributable interest of each such limited partner.

(9) Officers and directors of a cable operator, an MVDDS licensee, or an entity that controls such cable operator or MVDDS licensee, shall be considered to have an attributable interest in such cable operator or MVDDS licensee.

(10) Ownership interests that are held indirectly by any party through one or more intervening corporations or other entities shall be determined by successive multiplication of the ownership percentages for each link in the vertical ownership chain and application of the relevant attribution benchmark to the resulting product, except that, if the ownership for any interest in any link in the chain exceeds 50 percent or represents actual control, it shall be treated as if it were a 100 percent interest.

(11) Any person who manages the operations of a cable operator or an MVDDS licensee pursuant to a management agreement shall be considered to have an attributable interest in such cable operator or MVDDS licensee, if such person or its affiliate has authority to make decisions or otherwise engage in practices or activities that determine, or significantly influence:

(i) The nature or types of services offered by such entity;

(ii) The terms upon which such services are offered; or

(iii) The prices charged for such services.

(12) Any person or its affiliate who enters into a joint marketing arrangement with a cable operator, an MVDDS licensee, or an affiliate of such entity, shall be considered to have an attributable interest in such cable operator, MVDDS licensee, or affiliate, if such person or its affiliate has authority to make decisions or otherwise engage in practices or activities that determine:

(i) The nature or types of services offered by such entity;

(ii) The terms upon which such services are offered; or

(iii) The prices charged for such services.

(g) *Divestiture.* Any cable operator, or any entity owning an attributable interest in a cable operator, that would otherwise be barred from acquiring an attributable interest in an MVDDS license by the eligibility restriction in paragraph (a) of this section, may be a party to an MVDDS application (*i.e.*, have an attributable interest in the applicant), and such applicant will be eligible for an MVDDS license, pursuant to the divestiture procedures set forth in paragraphs (g)(1) through (g)(6) of this section.

(1) Divestiture shall be limited to the following prescribed means:

(i) An MVDDS applicant holding an attributable interest in a cable operator may divest such interest in the cable company.

(ii) Other MVDDS applicants disqualified under paragraph (a) of this section, will be permitted to:

(A) Partition and divest that portion of the existing service area that causes it to exceed the overlap restriction in paragraph (a) of this section, subject to applicable regulations of state and local governments; or

(B) Partition and divest that portion of the MVDDS geographic service area that exceeds the overlap restriction in paragraph (a) of this section.

(iii) Divestiture may be to an interim trustee if a buyer has not been secured in the required period of time, as long as the MVDDS applicant has no interest in or control of the trustee and the trustee may dispose of the license as it sees fit.

(2) The MVDDS applicant shall certify as an exhibit to its short form application that it and all parties to the application will come into compliance with paragraph (a) of this section.

(3) If such MVDDS applicant is a successful bidder in an auction, it must submit with its long-form application a signed statement describing its efforts to date and future plans to come into compliance with the eligibility restrictions in paragraph (a) of this section.

(4) If such an MVDDS applicant is otherwise qualified, its application will be granted subject to a condition that the applicant shall come into compliance with the eligibility restrictions in paragraph (a) within ninety (90) days of final grant of such MVDDS license.

(5) An MVDDS applicant will be considered to have come into compliance with paragraph (a) of this section if:

(i) In the case of the divestiture of a portion of an MVDDS license service area, it has successfully completed the assignment or transfer of control of the requisite portion of the MVDDS geographic service area.

(ii) In all other cases, it has submitted to the Commission a signed certification that it has come into compliance with paragraph (a) of this section by the following means, identified in such certification:

(A) By divestiture of a disqualifying interest in a cable operator, identified in terms of the interest owned, the owner of such interest (and, if such owner is not the applicant itself, the relationship of the owner to the applicant), the name of the party to whom such interest has been divested, and the date such divestiture was executed; or

(B) By divestiture of the requisite portion of the cable operator's existing service area, identified in terms of the name of the party to whom such interest has been divested, the date such divestiture was executed, the name of any regulatory agency that must approve such divestiture, and the date on which an application was filed for this purpose with the regulatory agency.

(6) If no such certification or application is tendered to the Commission within ninety (90) days of final grant of the initial license, the Commission may cancel or rescind the license automatically, shall retain all monies paid to the Commission, and, based on the facts presented, shall take any other action it may deem appropriate.

NOTE TO §101.1412: Waivers of §101.1412(f) may be granted upon an affirmative showing:

(a) That the interest holder has less than a fifty percent voting interest in the licensee and there is an unaffiliated single holder of a fifty percent or greater voting interest;

(b) That the interest holder is not likely to affect the local market in an anticompetitive manner;

(c) That the interest holder is not involved in the operations of the licensee and does not have the ability to influence the licensee on a regular basis; and

(d) That grant of a waiver is in the public interest because the benefits to the public of common ownership outweigh any potential anticompetitive harm to the market.

[69 FR 31746, June 7, 2004, as amended at 69 FR 59146, Oct. 4, 2004]

§101.1413 License term and renewal expectancy.

(a) The MVDDS license term is ten years, beginning on the date of the initial authorization grant.

(b) Application of a renewal expectancy is based on a showing of substantial service at the end of five years into the license period and ten years into the license period. The substantial service requirement is defined as a service that is sound, favorable, and substantially above a level of mediocre service which might minimally warrant renewal. At the end of five years into the license term and ten years

into the license period, the Commission will consider factors such as:

(1) Whether the licensee's operations service niche markets or focus on serving populations outside of areas serviced by other MVDDS licensees;

(2) Whether the licensee's operations serve populations with limited access to telecommunications services; and

(3) A demonstration of service to a significant portion of the population or land area of the licensed area.

(c) The renewal application of an MVDDS licensee must include the following showings in order to claim a renewal expectancy:

(1) A coverage map depicting the served and unserved areas;

(2) A corresponding description of current service in terms of geographic coverage and population served or transmitter locations in the served areas; and

(3) Copies of any Commission Orders finding the licensee to have violated the Communications Act or any Commission rule or policy and a list of any pending proceedings that relate to any matter described by the requirements for the renewal expectancy.

§ 101.1415 Partitioning and disaggregation.

(a) MVDDS licensees are permitted to partition licensed geographic areas along county borders (Parishes in Louisiana or Territories in Alaska). Disaggregation will not be permitted by MVDDS licensees in the 12.2–12.7 GHz band. ''Partitioning'' is the assignment of geographic portions of a license along geopolitical or other boundaries. ''Disaggregation'' is the assignment of discrete portions or ''blocks'' of spectrum licensed to a geographic licensee or qualifying entity.

(b) *Eligibility*. (1) Parties seeking approval for partitioning shall request from the Commission an authorization for partial assignment of a license pursuant to § 1.948 of this chapter.

(2) MVDDS licensees may apply to the Commission to partition their licensed geographic service areas to eligible entities and are free to partition their licensed spectrum at any time following the grant of a license.

(3) Any existing frequency coordination agreements shall convey with the assignment of the geographic area or spectrum, and shall remain in effect for the term of the agreement unless new agreements are reached.

(c) *Technical standards*. (1) Partitioning. In the case of partitioning, applicants and licensees must file FCC Form 603 pursuant to § 1.948 of this chapter and list the partitioned service area on a schedule to the application.

(2) The geographic coordinates must be specified in degrees, minutes, and seconds to the nearest second of latitude and longitude and must be based upon the 1983 North American Datum (NAD83).

(d) *Unjust enrichment*. 12 GHz licensees that received a bidding credit and partition their licenses to entities not meeting the eligibility standards for such a bidding credit, will be subject to the provisions concerning unjust enrichment as set forth in § 1.2111 of this chapter.

(e) *License term*. The MVDDS license term is ten years, beginning on the date of the initial authorization grant. The license term for a partitioned license area shall be the remainder of the original licensee's license term as provided for in § 101.1413.

(f) *Construction requirements*. Applications requesting approval for partitioning must include a certification by each party stating that one or both parties will satisfy the construction requirement set forth in § 101.1413. Failure by a party to meet its respective construction requirement will result in the automatic cancellation of its license without further Commission action.

§ 101.1417 Annual report.

Each MVDDS licensee shall file with the Broadband Division of the Wireless Telecommunications Bureau of the Commission two copies of a report by March 1 of each year for the preceding calendar year. This report must include the following:

(a) Name and address of licensee;

(b) Station(s) call letters and primary geographic service area(s); and

(c) The following statistical information for the licensee's station (and each channel thereof):

(1) The total number of separate subscribers served during the calendar year;

(2) The total hours of transmission service rendered during the calendar year to all subscribers;

(3) The total hours of transmission service rendered during the calendar year involving the transmission of local broadcast signals; and

(4) A list of each period of time during the calendar year in which the station rendered no service as authorized, if the time period was a consecutive period longer than 48 hours.

§ 101.1421 Coordination of adjacent area MVDDS stations.

(a) MVDDS licensees in the 12.2–12.7 GHz band are required to develop sharing and protection agreements based on the design and architecture of their systems, in order to ensure that no harmful interference occurs between adjacent geographical area licensees. MVDDS licensees shall:

(1) Engineer systems to be reasonably compatible with adjacent and co-channel operations in the adjacent areas on all its frequencies; and

(2) Cooperate fully and in good faith to resolve interference and transmission problems that are present on adjacent and co-channel operations in adjacent areas.

(b) Harmful interference to public safety stations, co-channel MVDDS stations operating in adjacent geographic areas, and stations operating on adjacent channels to MVDDS stations is prohibited. In areas where the DMAs are in close proximity, careful consideration should be given to power requirements and to the location, height, and radiation pattern of the transmitting and receiving antennas. Licensees are expected to cooperate fully in attempting to resolve problems of potential interference before bringing the matter to the attention of the Commission.

(c) Licensees shall coordinate their facilities whenever the facilities have optical line-of-sight into other licensees' areas or are within the same geographic area. Licensees are encouraged to develop operational agreements with relevant licensees in the adjacent geographic areas. Incumbent public safety POFS licensee(s) shall retain exclusive rights to its channel(s) within the relevant geographical areas and must be protected in accordance with the procedures in § 101.103. A list of public safety incumbents is attached as Appendix I to the Memorandum Opinion and Order and Second Report and Order, Docket 98–206, released May 23, 2002. Please check with the Commission for any updates to that list.

§ 101.1423 Canadian and Mexican coordination.

Pursuant to § 2.301 of this chapter, MVDDS systems in the United States within 56 km (35 miles) of the Canadian and Mexican border will be granted conditional licenses, until final international agreements are approved. These systems may not cause harmful interference to stations in Canada or Mexico. MVDDS stations must comply with the procedures outlined under §§ 101.147(p) and 1.928(f)(1) and (f)(2) of this chapter until final international agreements concerning MVDDS are signed. Section 1.928(f) of this chapter states that transmitting antennas can be located as close as five miles (eight kilometers) of the border if they point within a sector of 160 degrees away from the border, and as close as thirty-five miles (fifty-six km) of the border if they point within a sector of 200 degrees toward the border without coordination with Canada. MVDDS licensees shall apply this method near the Canadian and Mexican borders. No stations are allowed within 5 miles of the borders.

§ 101.1425 RF safety.

MVDDS stations in the 12.2–12.7 GHz frequency band do not operate with output powers that equal or exceed 1640 watts EIRP and therefore will not be subject to the routine environmental evaluation rules for radiation hazards, as set forth in § 1.1307 of this chapter.

§ 101.1427 MVDDS licenses subject to competitive bidding.

Mutually exclusive initial applications for MVDDS licenses in the 12.2–12.7 GHz band are subject to competitive bidding. The general competitive bidding procedures set forth in part 1,

subpart Q of this chapter will apply unless otherwise provided in this subpart.

§ 101.1429 Designated entities.

(a) *Eligibility for small business provisions.* (1) A very small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $3 million for the preceding three years.

(2) A small business is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $15 million for the preceding three years.

(3) An entrepreneur is an entity that, together with its controlling interests and affiliates, has average annual gross revenues not exceeding $40 million for the preceding three years.

(b) *Bidding credits.* A winning bidder that qualifies as a very small business, as defined in this section, or a consortium of very small businesses may use the bidding credit specified in § 1.2110(f)(2)(i) of this chapter. A winning bidder that qualifies as a small business, as defined in this section, or a consortium of small businesses may use the bidding credit specified in § 1.2110(f)(2)(ii) of this chapter. A winning bidder that qualifies as an entrepreneur, as defined in this section, or a consortium of entrepreneurs may use the bidding credit specified in § 1.2110(f)(2)(iii) of this chapter.

§ 101.1440 MVDDS protection of DBS.

(a) An MVDDS licensee shall not begin operation unless it can ensure that the EPFD from its transmitting antenna at all DBS customers of record locations is below the values listed for the appropriate region in § 101.105(a)(4)(ii). Alternatively, MVDDS licensees may obtain a signed written agreement from DBS customers of record stating that they are aware of and agree to their DBS system receiving MVDDS signal levels in excess of the appropriate EPFD limits specified in § 101.105(a)(4)(ii). DBS customers of record are those who had their DBS receive antennas installed prior to or within the 30 day period after notification to the DBS operator by the MVDDS licensee of the proposed MVDDS transmitting antenna site.

(b) MVDDS licensees are required to conduct a survey of the area around its proposed transmitting antenna site to determine the location of all DBS customers of record that may potentially be affected by the introduction of its MVDDS service. The MVDDS licensee must assess whether the signal levels from its system, under its deployment plans, would exceed the appropriate EPFD levels in § 101.105(a)(4)(ii) at any DBS customer of record location. Using EPFD calculations, terrain and building structure characteristics, and the survey results, an MVDDS licensee must make a determination of whether its signal level(s) will exceed the EPFD limit at any DBS customer of record sites. To assist in making this determination, the MVDDS provider can use the EPFD contour model developed by the Commission and described in Appendix J of the Memorandum Opinion and Order and Second Report and Order, ET Docket 98–206 or on the OET website at *http://www.fcc.gov/oet/dockets/et98-206*.

(c) If the MVDDS licensee determines that its signal level will exceed the EPFD limit at any DBS customer site, it shall take whatever steps are necessary, up to and including finding a new transmit site, to ensure that the EPFD limit will not be exceeded at any DBS customer location.

(d) *Coordination between MVDDS and DBS licensees.* (1) At least 90 days prior to the planned date of MVDDS commencement of operations, the MVDDS licensee shall provide the following information to the DBS licensee(s):

(i) Geographic location (including NAD 83 coordinates) of its proposed station location;

(ii) Maximum EIRP of each transmitting antenna system;

(iii) Height above ground level for each transmitting antenna;

(iv) Antenna type along with main beam azimuth and altitude orientation information, and description of the antenna radiation pattern;

(v) Description of the proposed service area; and

(vi) Survey results along with a technical description of how it determined compliance with the appropriate EPFD level at all DBS subscriber locations.

(2) No later than forty-five days after receipt of the MVDDS system information in paragraph (d)(1) of this section, the DBS licensee(s) shall provide the MVDDS licensee with a list of only those new DBS customer locations that have been installed in the 30-day period following the MVDDS notification and that the DBS licensee believes may receive harmful interference or where the prescribed EPFD limits may be exceeded. In addition, the DBS licensee(s) could indicate agreement with the MVDDS licensee's technical assessment, or identify DBS customer locations that the MVDDS licensee failed to consider or DBS customer locations where they believe the MVDDS licensee erred in its analysis and could exceed the prescribed EPFD limit.

(3) Prior to commencement of operation, the MVDDS licensee must take into account any new DBS customers or other relevant information provided by DBS licensees in response to the notification in paragraph (d)(1) of this section.

(e) Beginning thirty days after the DBS licensees are notified of a potential MVDDS site in paragraph (d)(1) of this section, the DBS licensees are responsible for providing information they deem necessary for those entities who install all future DBS receive antennas on its system to take into account the presence of MVDDS operations so that these DBS receive antennas can be located in such a way as to avoid the MVDDS signal. These later installed DBS receive antennas shall have no further rights of complaint against the notified MVDDS transmitting antenna(s).

(f) In the event of either an increase in the EPFD contour in any direction or a major modification as defined in § 1.929 of this chapter, such as the addition of an antenna, to an MVDDS station, the procedures of paragraphs (d) and (e) of this section and rights of complaint begin anew. Exceptions to this are renewal, transfer of control, and assignment of license applications.

(g) *Interference complaints.* The MVDDS licensee must satisfy all complaints of interference to DBS customers of record which are received during a one year period after commencement of operation of the transmitting facility. Specifically, the MVDDS licensee must correct interference caused to a DBS customer of record or cease operation if it is demonstrated that the DBS customer is receiving harmful interference from the MVDDS system or that the MVDDS signal exceeds the permitted EPFD level at the DBS customer location.

Subpart Q—Service and Technical Rules for the 70/80/90 GHz Bands

SOURCE: 69 FR 3267, Jan. 23, 2004, unless otherwise noted.

§ 101.1501 Service areas.

The 70/80/90 GHz bands are licensed on the basis of non-exclusive nationwide licenses. There is no limit to the number of non-exclusive nationwide licenses that may be granted for these bands, and these licenses will serve as a prerequisite for registering individual links.

§ 101.1505 Segmentation plan.

(a) An entity may request any portion of the 71–76 GHz and 81–86 GHz bands, up to 5 gigahertz in each segment for a total of 10 gigahertz. Licensees are also permitted to register smaller segments.

(b) The 92–95 GHz band is divided into three segments: 92.0–94.0 GHz and 94.1–95.0 GHz for non-government and government users, and 94.0–94.1 GHz for Federal Government use. Pairing is allowed and segments may be aggregated without limit. The bands in paragraph (a) of this section can be included for a possible 12.9 gigahertz maximum aggregation. Licensees are also permitted to register smaller segments than provided here.

[70 FR 29998, May 25, 2005]

§ 101.1507 Permissible operations.

Licensees may use the 70 GHz, 80 GHz and 90 GHz bands for any point-to-point, non-broadcast service. The segments may be unpaired or paired, but paring will be permitted only in a standardized manner (*e.g.,* 71–72.25 GHz may be paired only with 81–82.25 GHz, and so on). The segments may be aggregated without limit.

§ 101.1511 Regulatory status and eligibility.

(a) Licensees are permitted to provide services on a non-common carrier and/or on a common carrier basis.

(b) Licensees are subject to the requirements set forth in § 101.7.

(c) Any entity, other than one precluded by § 101.7, is eligible for authorization to provide service under this part. Authorization will be granted upon proper application filing and link coordination in accordance with the Commission's rules.

§ 101.1513 License term and renewal expectancy.

The license term is ten years, beginning on the date of the initial authorization (nationwide license) grant. Registering links will not change the overall renewal period of the license.

[70 FR 29998, May 25, 2005]

§ 101.1523 Sharing and coordination among non-government licensees and between non-government and government services.

(a) Registration of each link in the 71–76 GHz, 81–86 GHz, and 92–95 GHz bands will be in the Universal Licensing System until the Wireless Telecommunications Bureau announces by public notice the implementation of a third-party database.

(b) The licensee or applicant shall:

(1) Complete coordination with Federal Government links according to the coordination standards and procedures adopted in Report and Order, FCC 03–248, and as further detailed in subsequent implementation public notices issued consistent with that order;

(2) Provide an electronic copy of an interference analysis to the third-party database manager which demonstrates that the potential for harmful interference to or from all previously registered non-government links has been analyzed according to the standards of section 101.105 and generally accepted good engineering practice, and that the proposed non-government link will neither cause harmful interference to, nor receive harmful interference from, any previously registered non-government link; and

(3) Provide upon request any information related to the interference analysis and the corresponding link. The third-party database managers shall receive and retain the interference analyses electronically and make them available to the public. Protection of individual links against harmful interference from other links shall be granted to first-in-time registered links. Successful completion of coordination via the NTIA automated mechanism shall constitute successful non-Federal Government to Federal Government coordination for that individual link.

(c) In addition, the following types of non-Federal Government links require the filing with the Commission an FCC Form 601 for each link for the purpose of coordination and registration, in addition to registering each link in the third-party database:

(1) Facilities requiring the submission of an Environmental Assessment,

(2) Facilities requiring international coordination, and

(3) Operation in quiet zones.

(d) The Commission believes the licensee is in the best position to determine the nature of its operations and whether those operations impact these settings, and is required to submit to a database manager, as part of the registration package, documentation that an FCC Form 601 has been filed.

[69 FR 3267, Jan. 23, 2004, as amended at 70 FR 29998, May 25, 2005]

§ 101.1525 RF safety.

Licensees in the 70–80–90 GHz bands are subject to the exposure requirements found in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, and will use the parameters found therein.

§ 101.1527 Canadian and Mexican coordination.

(a) A licensee of bands 71.0–76.0, 81.0–86.0, 92–94 GHz and 94.1–95 GHz must comply with § 1.928(f) of this chapter, which pertains to coordination with Canada.

(b) A licensee of bands 71.0–76.0, 81.0–86.0, 92–94 GHz and 94.1–95 GHz must coordinate with Mexico in the following situations:

(1) For a station the antenna of which looks within the 200 deg. sector

toward the Mexico-United States borders, that area in each country within 35 miles of the borders; and

(2) For a station the antenna of which looks within the 160 deg. sector away from the Canada-United States borders, that area in each country within 5 miles of the borders.

PARTS 102–199 [RESERVED]