FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2, 25, 73, 90, and 97

[ET Docket No. 04–139; FCC 05–70]

WRC–03 Omnibus

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: This document implements allocation changes to the frequency range between 5900 kHz and 27.5 GHz in furtherance of decisions that were made at the World Radiocommunication Conference (Geneva, 2003) (WRC–03) and updates the Commission's Rules in this frequency range. The Federal Communications Commission (Commission) took this action in order to conform its Rules, to the extent practical, to the decisions that the international community made at WRC–03. This action will promote the advancement of new and expanded services and provide significant benefits to the American public.

DATES: Effective September 9, 2005.

FOR FURTHER INFORMATION CONTACT: Tom Mooring, Policy and Rules Division, Office of Engineering and Technology, (202) 418–2450, *Tom.Mooring@fcc.gov.*

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Report and Order*, ET Docket No. 04–139, FCC 05–70, adopted March 10, 2005 and released March 16, 2005. The full text of this document is available on the Commission's Internet site at *http://www.fcc.gov.* It is also available for inspection and copying during regular business hours in the FCC Reference Center (Room CY–A257), 445 12th Street, SW., Washington, DC 20554. The full text of this document also may be purchased from the Commission's duplication contractor, Best Copy and Printing Inc., Portals II, 445 12th St., SW., Room CY-B402, Washington, DC 20554; telephone (202) 488–5300; fax (202) 488–5563; e-mail *FCC@BCPIWEB.COM.*

Summary of the Report and Order

1.On March 29, 2004, we adopted a *Notice of Proposed Rulemaking* (Omnibus NPRM) in this proceeding, 69 FR 33698, June 16, 2004. In the *Report and Order* (R&O), we amended parts 2, 25, 73, 90, and 97 of the Commission's rules in order to implement allocation changes to the frequency range between 5900 kHz and 27.5 GHz in furtherance of decisions that were made at the World Radiocommunication Conference (Geneva, 2003) (WRC–03) and to otherwise update our rules in this frequency range. We have taken the following significant actions for non-Federal operations: Realignment of the allocations near 7 MHz, which includes making the band 7100–7200 kHz immediately available to amateur operators in Regions 1 and 3; adoption of the Digital Radio Mondiale (DRM) standard and related actions, which are anticipated to reinvigorate the HF broadcasting (HFBC) service (also known as ''shortwave broadcasting''); and raising the secondary Earth exploration satellite-service (EESS) allocation in the band 25.5–27 GHz to primary status, thereby meeting the needs of the commercial remote sensing industry for wider bandwidth operations. These and various other decisions adopted in the R&O conform the Commission's rules, to the extent practical, to the decisions that the international community made at WRC–03 and will collectively promote the advancement of new and expanded services and provide significant benefits to the American public.

Executive Summary

2. In this summary, we expand on our discussion of the most significant decisions that the Commission made in the Report and Order. First, the Commission describes the actions that affect non-Federal operations. These actions are limited to the HF (3–30 MHz), UHF (300–3000 MHz), and SHF (3–30 GHz) frequency ranges.

In the HF Frequency Range:

- Authorize the use of double sideband (DSB), single sideband (SSB), and digital transmissions in the HF bands between 5900 kHz and 26100 kHz that are allocated to the broadcasting service and adopt the ITU system specifications for their use.
- Adopt minimum operating power requirements for HFBC stations using SSB modulation (50 kilowatts (kW) peak envelope power (PEP)) and digital modulation (10 kW mean power).
- Require the use of the DRM standard for digital transmissions in the HFBC bands.
- Realign the allocations near 7 MHz to: Reallocate the band 7100–7200 kHz to the amateur service on a co-primary basis with the broadcasting service in the U.S. Pacific insular areas that are located in Region 3 until March 29, 2009, at which time this 100 kilohertz will be allocated exclusively to the amateur service; reallocate the band 7350–7400 kHz to the broadcasting service on a co-primary basis with the fixed service until March 29, 2009, at which time this 50 kilohertz will be allocated exclusively for HFBC use; and raise the allocation status of the mobile service in the bands 6765–7000 kHz and 7400–8100 kHz to primary and slightly narrow the range of permitted services in those bands by prohibiting the aeronautical mobile route (R) service.
- Authorize FCC-licensed amateur operators that are located within Region 1 or Region 3, but that are not located in another country's area of authority, to operate in the band 7100–7200 kHz on a primary basis; however, until March 29, 2009, these amateur operations must not impose constraints on the HFBC service intended for use within Region 1 and Region 3.

In the UHF Frequency Range

- Conform the provisional feeder link allocations (uplinks at 1390–1392 MHz and downlinks at 1430–1432 MHz) for the Non-Voice Non-Geostationary Mobile-Satellite Service (popularly known as ''Little LEOs'') to the *WRC–03 Final Acts.*

In the SHF Frequency Range

- Allocate the band 5000–5010 MHz to the radionavigation-satellite service (RNSS) and limit the use of this allocation to Earth-to-space transmissions (RNSS uplinks) on a primary basis for Federal and non-Federal use.
- Allocate the band 5010–5030 MHz to the RNSS and limit the use of this allocation to space-to-Earth transmissions (RNSS downlinks) and to space-to-space transmissions on a primary basis for Federal and non-Federal use.
- Raise the secondary non-Federal EESS allocation in the band 25.5–27 GHz that is limited to space-to-Earth transmissions (EESS downlinks) to primary status.
- Replace the secondary non-Federal EESS allocation in the band 25.25–27.5 GHz that is limited to space-to-space transmissions with the broader inter-satellite service (ISS) allocation and limit its use to EESS and SRS applications and to transmissions of data originating from industrial and medical activities in space.

3. Second, at the request of the National Telecommunications and Information Administration (NTIA), we are making a number of allocation changes to the Federal Table of Frequency Allocations (Federal Table), three of which pertain to the space research service (SRS). These allocation changes involve spectrum primarily used by Federal agencies and are anticipated to have limited impact on non-Federal licensees that are authorized to operate in the affected

Federal bands. Specifically, we reflect changes to the Federal Table that: Allocate the band 432–438 MHz to the EESS (active) on a secondary basis for use mainly outside of the United States; raise the secondary radiolocation service allocation in the band 2900–3100 MHz to primary status; specify that the SRS (deep space) (Earth-to-space) allocation in the band 7145–7190 MHz has primary status; raise the secondary SRS allocation in the band 14.8–15.35 GHz to primary status; and allocate the band 25.5–27 GHz to the SRS (space-to-Earth) on a primary basis.

The 7 MHz Realignment and the WARC–92 HFBC Bands

4. We are implementing the proposed realignment of the allocations near 7 MHz with certain minor adjustments. We are making allocation decisions that affect HF broadcasting, a portion of the 40 meter amateur band (7100–7200 kHz), and the fixed and mobile services.

5. *HF Broadcasting.* We adopted international footnote 5.134 domestically. This footnote requires the use of seasonal planning in the HFBC bands that were adopted at the 1992 World Administrative Radio Conference (WARC–92) as of April 1, 2007, and thus finalizes the reallocation of the WARC–92 HFBC bands, which will be allocated exclusively to the broadcasting service on a worldwide basis as of April 1, 2007 (March 25, 2007 in the United States). Seasonal planning and the exclusive allocation of these bands to the broadcasting service will allow international broadcasters to make more extensive use of this spectrum.

6. Consistent with the *WRC–03 Final Acts,* we allocated the bands 7350–7400 kHz and 7400–7450 kHz to the broadcasting service on a co-primary basis with the fixed service until March 29, 2009. In accordance with the ITU *Radio Regulations,* the use of the band 7400–7450 kHz is limited to international broadcast stations that are located in the U.S. Pacific insular areas in Region 3 and that transmit to either Region 1 or Region 3. After March 29, 2009, the band 7350–7450 kHz (7400–7450 kHz only in Region 1 and Region 3) is allocated exclusively to the broadcasting service. At the conclusion of the WRC–03 transition period (March 29, 2009), this action replaces 100 kilohertz of exclusive Regional HFBC spectrum (7100–7200 kHz), which is being reallocated to the amateur service, with 50 kilohertz of exclusive global HFBC spectrum (7350–7400 kHz) and 50 kilohertz of exclusive Regional HFBC spectrum (7400–7450 kHz).

7. We reorganized § 73.702(f) of the Commission's rules in order to clarify and correct existing rules and to add the band 7350–7450 kHz to these rules. First, we subdivided § 73.702(f) into three paragraphs by establishing new paragraph (g) for the rules that will apply to co-primary HFBC allocations and new paragraph (h) for requirements that will apply to Regional HFBC operation. Section 73.702(f) will apply only to the frequency bands allocated exclusively to the HFBC service. Second, in order to recognize out-of-band operations, we have added the phrase ''Where practical,'' to paragraph (f). Third, we are subdividing the exclusive HFBC allocations into worldwide allocations (which will be listed in § 73.702(f)(1)) and the Regional allocation (which will be listed in § 73.702(f)(2)). Fourth, we added an informational note that points to the definitions of the ITU Regions. Fifth, in new paragraph (g), we state that frequencies may be assigned from within the listed frequency bands that are allocated on a co-primary basis and thereafter this rule describes how the frequency bands are allocated. Sixth, the co-primary HFBC allocations are further grouped into worldwide allocations (which will be listed in paragraph (g)(1)) and Regional allocations (which will be listed in paragraph (g)(2)). Seventh, in order to recognize the co-primary status of the amateur service during the transition period and to provide guidance to HF broadcasters after March 27, 2005, new Section 73.702(g)(2)(i) of the rules. Eighth, we take note of continued co-primary fixed service use of the band 7350–7450 kHz in the 19 countries that are listed in international footnote 5.143C (most are in North Africa and the Middle East). Ninth, we have consolidated the requirements for Regional operation in paragraph (h). See the final rules for the text of paragraphs (f), (g), and (h) of § 73.702.

8. *The 40-Meter Band.* Absent any Commission action to the contrary, the Commission generally governs the operation of stations located in the U.S. Pacific insular areas in Region 3 consistent with the Region 3 Table. Therefore, in accordance with the Region 3 Table, we reallocated the band 7100–7200 kHz to the amateur service on a primary basis in the U.S. Pacific insular areas located in Region 3. In accordance with international footnote 5.141C, the band 7100–7200 kHz remains allocated, until March 29, 2009, to the broadcasting service on a primary basis in the U.S. Pacific insular areas in Region 3. At the end of the WRC–03 transition period (*i.e.*, after March 29, 2009), the band 7100–7200 kHz is allocated exclusively to the amateur service in the U.S. Pacific insular areas in Region 3.

9. Based on comments of the ARRL, the National Association for Amateur Radio (ARRL) and others, we are authorizing FCC-licensed amateur operators that are located within either Region 1 or Region 3 and that are outside an area where the amateur service is regulated by an authority other than the Commission to make immediate use of the band 7.1–7.2 MHz. This action effectively increases the number of channels available worldwide to amateur stations and allows amateur stations to make more effective use of their frequency bands. In order to implement this decision, we amended § 97.301 of the Commission's rules to add 7.1–7.2 MHz as an authorized frequency segment in Region 1 and Region 3. Specifically, we are authorizing a station having a control operator who has been granted an operator license of Amateur Extra Class or Advanced Class to use all frequencies within the segment 7.0–7.2 MHz when operating in Region 1 or Region 3. Consistent with their operating authority in Region 2, we are also authorizing a station having a control operator who has been granted an operator license of General Class, Novice Class, or Technician Class to use an additional 50 kilohertz when operating in Region 1 or Region 3 as follows. General Class licensees may operate within the segment 7.025–7.150 MHz and Novice Class and Technician Class licensees may operate within the segments 7.050–7.075 MHz and 7.100–7.150 MHz.

10. Currently, phone emissions may be transmitted in the segment 7.075–7.100 MHz by amateur stations located in Regions 1 and 3, and by amateur stations located within Region 2 that are west of 130° west longitude or south of 20° north latitude. In the Report and Order, we authorized those amateur stations that the Commission regulates in Region 1 and Region 3 with the same emission privileges for the band 7.100–7.200 MHz that we currently authorize for stations in Region 2. We note that one commenter requested that the frequency band for authorized phone emissions in the United States be expanded. We previously proposed in a separate proceeding to expand the 40-meter phone band from 7.150–7.300 MHz to 7.125–7.300 MHz. For this reason, we find that the request is outside the scope of the instant proceeding.

11. We observe that the amateur and broadcasting services will share the band 7.1–7.2 MHz on a co-primary basis for about four years. In this regard, we

want to make clear that the seasonal schedule for international broadcasting constitutes ''first in'' and thus, amateur operators are expected to keep themselves apprised of the changing seasonal schedules and to avoid transmissions that are likely to interfere with the reception of international broadcast programs. In addition, we are concerned about blanketing interference and note that, in areas where homes are packed closely together, an amateur station could disrupt several listeners' reception of international broadcast programming. Therefore, at the request of the Broadcasting Board of Governors (BBG), we will make explicit our expectation that amateur operators are to eliminate any interference problem that they cause while transmitting in the band 7.1–7.2 MHz. We believe that this action is necessary because of the novel co-primary sharing situation that will go on for approximately four years. Accordingly, we adopted a new United States footnote, (US395).

12. *The WARC–92 HFBC Bands.* In the *Below 28 MHz Report and Order,* 68 FR 25512, May 13, 2003, the Commission adopted footnote US366 and stated that it would cease to issue licenses for new non-Federal stations in the fixed and mobile services in the WARC–92 HFBC bands on April 1, 2007. We observe that this implementation date lags behind the start of Schedule A for international broadcasting in 2007 (March 25) by one week. Because a significant number of international broadcast stations are currently operating in frequency bands not allocated to the broadcasting service, we conclude that it is highly likely that international broadcasters will attempt to use the WARC–92 HFBC bands more intensely beginning on March 25, 2007 (not April 1, 2007). We observe that the *WARC–92 Final Acts* provided incumbent licensees in the fixed and mobile services a 15 year transition period (April 1, 1992 to April 1, 2007) during which these licensees could have relocated their operations to other frequency bands. Moreover, except in Alaska and the U.S. Pacific insular areas, the Commission does not seek international protection for assignments to stations in the fixed and land mobile services that operate in frequency bands below 25 MHz, and thus, the Commission will not accept responsibility for the protection of these circuits from harmful interference caused by foreign operations. Because of its concern for potential harmful interference to these unprotected circuits, the Commission has long required that equipment in the fixed and land mobile services operating in the frequency bands below 25 MHz to be tunable. Thus, the 219 licenses authorized under § 90.266 that currently operate in a WARC–92 HFBC band will be able to operate outside the reallocated spectrum with minimal effort. We find that advancing the implementation date for the WARC–92 HFBC bands by one week is prudent, in the public interest, and of a de minimus nature. Because the allocation change does not take effect until 2007, fixed and mobile licensees that are still operating in the WARC–92 HFBC bands now have advance notice of this situation. Accordingly, we revised footnote US366 and our licensing policy to align the implementation date for the WARC–92 HFBC bands in the United States with the start of the A07 seasonal schedule.

13. BBG recommends that we delete unused fixed and mobile allocations from the non-Federal Table in the WARC–92 HFBC bands. Our licensing records show that there are no non-Federal licensees authorized to operate stations in the: Aeronautical mobile service in two of the WARC–92 HFBC bands (5900–5950 kHz and 7300–7350 kHz) and in the WRC–03 HFBC band (7350–7400 kHz); and fixed service in three of the WARC–92 HFBC bands (13570–13600 kHz, 17480–17550 kHz, and 18900–19020 kHz). Accordingly, we are deleting these unused allocations from the non-Federal Table and from footnote US366.

14. We are moving the transition plan for the band 7300–7350 kHz, which is currently shown in footnote US366, to a new United States footnote that is discussed in paragraph 17, of this document. Finally, our review finds that footnote US366 inadvertently expands the mobile service allocations in the WARC–92 HFBC bands and we are therefore correcting this error. Taking all these factors into account, we have revised footnote US366.

15. As of our most recent review (March 5, 2005), the Commission has issued 249 licenses for the authority to operate stations in the fixed or mobile services in spectrum that has been reallocated internationally to the HFBC service. We anticipate that a significant number of international broadcast stations, which currently are operating in bands not allocated to the broadcasting service (out-of-band operations), will relocate to the WARC–92 HFBC bands beginning March 25, 2007, and to the band 7350–7400 kHz beginning March 29, 2009. We recommend that licensees in the fixed and mobile except aeronautical mobile services carefully evaluate whether their operations can coexist with these high-powered stations without causing interference to the reception of international broadcast programming. In this regard, we remind non-Federal licensees in the fixed and mobile except aeronautical mobile services that, as of March 25, 2007 for the WARC–92 HFBC bands and as of March 29, 2009 for the band 7350–7400 kHz, their operation is subject to immediate termination if the Commission determines that their operation is causing interference to the broadcasting service.

16. *WRC–03's Impact on the Fixed and Mobile Services.* Consistent with the WRC–03 transition plan, we are moving the existing primary fixed and secondary mobile service allocations in the band 7350–7400 kHz, which are listed directly in the U.S. Table, to new United States footnote US396, and we are maintaining the current allocation status of the fixed and mobile services in this band until the end of the WRC–03 HFBC transition period (March 29, 2009). Thereafter, stations in the fixed and mobile services will operate on an unprotected, non-interference basis to the HFBC service. Because the aeronautical mobile service portion of the mobile service allocation is unused, we will limit mobile service use to the mobile except aeronautical mobile service.

17. The Commission has previously reallocated the band 7300–7350 MHz (a WARC–92 HFBC band) to the broadcasting service on a co-primary basis with the fixed service until April 1, 2007, at which time this 50 kilohertz is allocated exclusively for HFBC use. Because the only difference between the reallocation of the band 7300–7350 kHz and the band 7350–7400 kHz is the transition period, we conclude that the reallocation of the band 7300–7400 kHz to the broadcasting service should be shown in a consistent manner. Therefore, we are moving the transition plan for the band 7300–7350 kHz from footnote US366 to new United States footnote US396, which will contain our transition plans for both the band 7300–7350 MHz and the band 7350–7400 kHz. In addition, we will cease the licensing of new non-Federal stations in the fixed and mobile services in the band 7350–7400 kHz on March 29, 2009.

18. With regard to incumbent stations in the fixed or mobile services in the band 7350–7400 kHz, it is not necessary to make special provision for the licensees in the Industrial/Business Radio Pool because most (101 of 102 licenses) are required to operate equipment that is tunable throughout the bands specified for long distance communications. We also decline to

make special provision for the three coast stations that are licensed to operate in the band 7350–7400 kHz because these stations can continue to operate on their licensed frequencies on a non-interference, unprotected basis to the HFBC service or these coast station licensees can move their operations to other frequency bands that are allocated to the fixed or mobile services. Our staff has reviewed the current seasonal schedule for the HFBC service. Because of the extremely light use of HFBC spectrum directed toward Alaska, we conclude that it is not necessary to place further burdens on the Alaska private-fixed stations, and therefore, will not reallocate the 2.8 kilohertz of spectrum used by these 18 licensees (the sub-band 7368.5–7371.3 kHz). Accordingly, we are adopting new United States footnote US396.

19. It is longstanding Commission policy that, absent any Commission action to the contrary, the operation of stations located in the U.S. Pacific insular areas in Region 3 are governed by the Region 3 Table. Therefore, in accordance with the Region 3 Table, the band 7350–7450 kHz is reallocated to the broadcasting service on a primary basis in the U.S. Pacific insular areas located in Region 3. In accordance with international footnote 5.143A, the band 7350–7450 kHz remains allocated, until March 29, 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis in the U.S. Pacific insular areas in Region 3. At the end of the WRC–03 transition period (i.e., after March 29, 2009), the band 7350–7450 kHz is allocated exclusively to the broadcasting service in the U.S. Pacific insular areas in Region 3.

20. In order to highlight the WARC–92 and WRC–03 transition plans in part 90 of the Commission's rules, we are adding new limitation (88) to the frequency range 2000 to 10,000 kHz in the Public Safety Pool Frequency Table, see § 90.20 of the rules.

21. Likewise, in order to highlight the WARC–92 and WRC–03 transition plans in Industrial/Business Pool Frequency Table in Part 90 of the Commission's Rules, we are adding new limitation (90) to the frequency range 2000 to 25,000 kHz, see § 90.30 of the Commission's rules.

22. Consistent with the *WRC–03 Final Acts,* we are allocating the bands 6765–7000 kHz and 7400–8100 kHz to the mobile except aeronautical mobile (R) service on a primary basis for Federal and non-Federal use. This action grants licensees increased flexibility and is expected to facilitate adaptive techniques, which together with automation techniques, can reduce the burden on the operator while making these mobile service radios more responsive to changing HF propagation conditions.

23. We adopted WRC–03's phased-in approach for the allocation upgrade in the band 6765–7000 kHz. However, because this spectrum is allocated to the mobile service in the United States (rather than the more limited land mobile service), we are adding a new footnote to the U.S. Table that maintains this secondary mobile service allocation until the end of the transition period, and that otherwise parallels international footnote 5.138A. Accordingly, we adopted footnote US394.

24. We allocated the band 7400–8100 kHz (7450–8100 kHz in the U.S. Pacific insular areas in Region 3) to the mobile except aeronautical mobile (R) service on a primary basis for Federal and non-Federal use and, at the request of NTIA, we are making this allocation upgrade effective as of the effective date of this Report and Order, in lieu of WRC–03's phased-in approach. Doing so will allow for primary mobile use of this band approximately four years earlier than under the phased-in approach. We received no comments opposing this action.

Service Rule Amendments for International Broadcast Stations

25. We revised the Commission's HFBC service rules to authorize SSB and digital transmissions in the HF bands between 5900 kHz and 26100 kHz that are allocated to the broadcasting service. This action updates the Commission's HFBC rules so that they mirror Appendix 11 of the ITU *Radio Regulations,* which was recently revised at WRC–03. As a result, FCC-licensed international broadcast stations now have the flexibility to continue to transmit DSB signals or to transmit SSB or digital signals. The RF system specifications are shown in the final rules at § 73.756 (DSB), § 73.757 (SSB), and § 73.758 (digital) of the Commission's rules.

26. We adopted the DRM standard for digital transmissions in the HFBC bands. We observe that DRM is the world's only non-proprietary, digital system for international broadcasting. WRC–03 gave approval for DRM use in all the HFBC bands; there are no band restrictions on the use on the use of DRM. Currently, seven international broadcasters are transmitting DRM signals to all or part of the 48 contiguous states. We also observe that there is a datacasting standard for DRM, which will permit FCC-licensed international broadcasters to offer wide-area datacasting as well as high quality audio broadcasting. Other benefits of DRM include: Improved audio quality that is near-FM quality sound; many existing DSB transmitters can be easily modified to carry DRM signals; the robustness of the DRM signal can be chosen to match different propagation conditions; and DRM uses the same frequencies and bandwidth as DSB, which simplifies coordination.

27. We revised § 73.751 of the Commission's rules to state that no international broadcast station will be authorized to install, or be licensed for operation of, transmitter equipment with a peak envelope power of less than 50 kW if SSB modulation is used. This action is consistent with a commenter's request that the minimum power level for SSB transmissions be such that the SSB signal would at least be equivalent to a DSB signal over the same signal path from transmitter to listener. In this regard, we note that the International Bureau has previously waived § 73.751 in order to authorize HFBC licensees to operate SSB transmitters at 50 kW PEP because this power provides approximately the same coverage area as a DSB transmitter with a rated carrier power of 50 kW (even though this power is equivalent to only 15–20 kW relative to a DSB transmitter).

28. We revised § 73.751 of the Commission's rules to state that no international broadcast station will be authorized to install, or be licensed for operation of, transmitter equipment with a mean power of less than 10 kW if digital modulation is used. We take this action at the request of the National Association of Shortwave Broadcasters (NASB) and BBG. In making this decision, our engineering staff has reviewed the DRM Broadcasters' User Manual. The key statement is paraphrased below:

> Under current coordination procedures, DRM transmissions are first coordinated as if the service were an analog DSB service and then a DRM transmission is substituted with a power level at least 7 dB lower than the allowable analog transmission.

Our engineering staff had originally recommended a minimum mean power of 20 kW. However, we observe that, using its Morocco transmitting station, ''BBG provided demonstrations of digital HFBC to the attendees of WRC–03 in Geneva. These very successful demonstrations used power levels of 10 kW.'' After considering these new facts and also recognizing that some international broadcast stations use rhombic antennas that can provide 10–15 dB of gain, we are persuaded to

adopt the minimum mean power level that NASB requests.

29. Finally, we agree with commenters that it is unnecessary to require that new HFBC transmitters have a digital modulation capability at this time because manufacturers are already building in provisions for digital modulation.

SRS and EESS Downlinks at 25.5–27 GHz and ISS at 25.25–27.5 GHz

30. We raised the secondary non-Federal EESS downlink allocation in the band 25.5–27 GHz to primary status. We find that this allocation upgrade is necessary to meet the requirements of the commercial remote sensing industry and that it is consistent with the new national policy for commercial remote sensing space capabilities that the President authorized on April 25, 2003. In order to implement this decision, we revised footnote US258 by including the band 25.5–27 GHz in its text. Consistent with our existing policy for the band 8025–8400 MHz, the Commission will issue licenses for operation in the band 25.5–27 GHz only after coordination under footnote US258 has been completed.

31. By adding the band 25.5–27 GHz to footnote US258, we are also making each non-Federal authorization subject to a case-by-case electromagnetic compatibility (EMC) analysis. Because of existing and planned Federal SRS and EESS requirements in the band 25.5–27 GHz, we find that it is important that non-Federal EESS downlinks operated in this band be designed to ensure compatibility with Federal systems. We are also adding international footnote 5.536A to the non-Federal Table in the band 25.5–27 GHz. This action provides guidance to earth station applicants, *e.g.*, Annex 1 provides a methodology for estimating needed separation distances between EESS earth stations and fixed stations, and alerts commercial remote sensing operators of the EESS downlink allocation's status in border areas (providing notice that, where possible, these operators should consider placing their receive earth stations away from border areas).

32. In order to protect Federal terrestrial receivers, we are requiring that non-Federal EESS space stations transmitting in the band 25.5–27 GHz meet the power flux-density (pfd) limits contained in Article 21 of the ITU *Radio Regulations*. We are codifying this requirement by adding these pfd limits to part 25 of the Commission's rules. The record does not demonstrate the need for additional technical constraints on EESS applicants, and therefore, we decline to adopt the additional constraints that were suggested by NTIA.

33. We are also broadening the secondary non-Federal EESS (space-to-space) allocation in the band 25.25–27.5 GHz to a secondary ISS allocation. However, we are also adopting international footnote 5.536, which limits the use of this ISS allocation to SRS and EESS applications, and also to transmissions of data originating from industrial and medical activities in space. This restriction is necessary to ensure that this frequency band meets the needs of the scientific community without being overtaken for use by the FSS or mobile-satellite service (MSS). In order to protect Federal terrestrial receivers, we are requiring that non-Federal ISS space stations transmitting in the band 25.25–27.5 GHz meet the pfd limits contained in Article 21 of the ITU *Radio Regulations*. The ISS pfd requirements and the EESS pfd requirements are the same and would be shown once in part 25 of the Commission's rules.

34. At NTIA's request, we are allocating the band 25.5–27 GHz to the SRS (space-to-Earth) on a primary basis for Federal use. This action will provide a primary SRS allocation to satisfy Federal requirements for high data rate space science missions.

35. Finally, we note that the allocation changes that we are making today in no way prevent radio frequency devices that operate in accordance with the requirements codified in part 15 from operating in the band 25.25–27.5 GHz.

RNSS and the Radiolocation Service

36. We did not receive any comments that addressed our proposals for the RNSS and the radiolocation service. Accordingly, we adopted our proposals. First, we are entering ''RADIONAVIGATION–SATELLITE (space-to-Earth) (space-to-space)'' in the U.S. Table for the band 1164–1215 MHz. We adopted international footnote 5.328A, which requires that RNSS stations in the band 1164–1215 MHz operate in accordance with Resolution 609 (WRC–03) and that they not claim protection from the aeronautical radionaviagation service in the band 960–1215 MHz. At the request of NTIA, we added footnote G132 to the Federal Table.

37. Because the record indicated no interest on the matter by any party, we decline to expand the RNSS allocation at 1215–1240 MHz, which is currently limited to Federal use, to the band 1215–1300 MHz and to make it available for both Federal and non-Federal use.

38. Second, we allocated the band 5000–5030 MHz to the RNSS on a primary basis for Federal and non-Federal use and we are limiting the use of the segment 5000–5010 MHz to uplink transmissions and the segment 5010–5030 MHz to downlink and crosslink transmissions. Consequently, we replaced footnote US370 with international footnote 5.444, thereby removing the band 5000–5030 MHz from the spectrum in which the Microwave Landing System (MLS) has precedence over other uses. In order to protect MLS operations above 5030 MHz and radio astronomy observations in the band 4990–5000 MHz, we are limiting the adjacent band pfd at the Earth's surface from RNSS operations in the band 5010–5030 MHz through the adoption of international footnote 5.443B.

39. Third, at the request of NTIA, we are raising the allocation status of the Federal radiolocation service in the band 2900–3100 MHz to primary and we are adding international footnote 5.424A to the Federal Table in order to protect important ship navigation systems. This allocation upgrade will increase the usefulness of this spectrum without causing any burden on existing operations. In particular, we note that, mainly as a result of newer radar design features that mitigate received radar-to-radar interference, NTIA reports that radionavigation radars operating in the band 2900–3100 MHz have demonstrated compatible operations with radiolocation systems. Because the record indicated no interest on the matter by any party, we decline to upgrade the allocation status of the non-Federal radiolocation service in the band 2900–3100 MHz.

Allocation Status of the Little LEO Feeder Link Bands

40. WRC–03 allocated spectrum for Little LEO feeder links on a secondary basis throughout the world and resolved that use of these allocations is contingent on the subsequent completion of spectrum sharing studies to determine the impact of these NGSO FSS operations on incumbent services, including passive service operations in the adjacent band 1400–1427 MHz. Furthermore, Resolution 745 indicates that any Little LEO use of these bands is subject to additional decisions on compatibility issues that may be adopted at the 2007 World Radiocommunication Conference (WRC–07). For these reasons, we disagree with Final Analysis Communication Services, Inc. (Final

Analysis) that the conditions set forth in footnote US368 have been met. The *27 MHz Report and Order*, 67 FR 6172, February 11, 2002, which added footnote US368, adopted the conditional co-primary allocation in anticipation of the completion of studies and adoption of a like allocation at WRC–03. By contrast, WRC–03 adopted worldwide secondary allocations for the band, added further conditions on its use, and continued to require studies of the band. These developments were not anticipated by the text of the *27 MHz Report and Order* nor by the terms of footnote US368.

41. Although the decision made at WRC–03 is inconsistent with the provisions outlined in footnote US368, we find it serves the public interest to maintain but revise the conditional allocations to reflect the WRC–03 action. Thus, we adopt our proposal to implement WRC–03's decision regarding Little LEO feeder links. We will require the completion of ITU–R studies on all identified compatibility issues as shown in Annex 1 of Resolution 745 (WRC–2003) and make any use of the worldwide feeder links subject to any further compatibility decisions by WRC–07. Accordingly, we are amending the Table entries for the FSS uplink allocation in the band 1390–1392 MHz and the FSS downlink allocation in the band 1430–1432 MHz to show secondary status in lieu of primary status, and we have revised footnote US368.

42. We reject as speculative Final Analysis' assertion that we should maintain a conditional co-primary allocation because WRC–07 may change the secondary international allocation to primary status. We do not believe it serves the public interest to preserve a provisional co-primary allocation in the band that is inconsistent with the WRC–03 decision, particularly because we cannot predict whether the contingencies provided in footnote US368 will be successfully met. Regardless of the provisional allocation afforded to Little LEO use of the band, parties interested in using the frequencies for feeder link operations will have to take into account the unresolved status of the band and potential added expense associated with planning for its use. Alternately, they may continue to use the spectrum that has already been made available for Little LEO feeder and service link operations, and that is free of any contingencies.

43. Finally, we note that the Little LEO feeder links protection requirements for passive services are specified in footnote US368 and that these requirements go beyond the more general protection criteria described in footnote US74. Therefore, in order to ensure that readers of footnote US74 do not overlook the specific restrictions embodied in US368, we are adding a cross reference to footnote US368 in footnote US74. We are also using the term ''unwanted emissions'' in place of ''extraband radiation'' in footnote US74. Finally, we are also adding a statement in our rules that airborne and space-to-Earth operations are prohibited in the Government transfer bands 1390–1400 MHz and 1427–1432 MHz, with the exception of Little LEO feeder downlinks in the band 1430–1432 MHz. This action makes explicit our previous decisions not to allocate additional spectrum in this frequency range to airborne or downlink operations and has been requested by NTIA. Accordingly, we have adopted a new United States footnote US398.

Remaining Space Radiocommunication Service Issues

44. At the request of NTIA, we are making allocation changes to three frequency bands. First, we are allocating the band 432–438 MHz to the EESS (active) on a secondary basis for Federal use and are requiring that space stations operating under this allocation not cause harmful interference to, nor claim protection from, the radiolocation, amateur, and amateur-satellite services in the United States. This action will permit NASA to perform limited pre-operational testing of its systems within line-of-sight of its U.S. control stations and appears to be feasible given the evidence of NASA's good relations with the amateur community as reflected in the record. Accordingly, we have adopted footnote US397.

45. Second, we are displaying the Federal SRS deep space uplink allocation, which is currently authorized in footnote US252, as a table entry in the Federal Table for the band 7145–7190 MHz. This action clarifies that the band 7145–7190 MHz is allocated to the SRS (deep space) (Earth-to-space) on a primary basis for Federal use and highlights that this SRS uplink use is limited to deep space communications. In addition, we are maintaining the non-Federal SRS deep space uplink allocation as a footnote allocation, are specifying that this unused allocation has secondary status, and are moving this allocation and the Goldstone site restriction to footnote US262. Accordingly, footnotes US252 and US262 have been revised.

46. NTIA has recently limited the use of the Federal SRS uplink allocation in the band 7190–7235 MHz by its adoption of footnote G133.

47. Third, we are raising the secondary SRS allocation in the band 14.8–15.35 GHz to primary status for Federal use, except in segment 15.2–15.35 GHz where SRS (passive) operations would continue to be authorized on a secondary basis. We find that the United States has developed extensive SRS operations in this band at great expense and these operations merit the protection that a primary allocation provides. We have revised footnote US310 by using a reference bandwidth that is more appropriate for today's digital transmissions than a reference bandwidth based on an analog channel. See the final rules for footnote US310's revised text.

ITU Terms and Definitions

48. In order to reflect additions and revisions to the terms and definitions listed in the ITU *Radio Regulations* and in the *WRC–03 Final Acts*, we are amending § 2.1 of the Commission's rules to: Add definitions for adaptive system, high altitude platform station (HAPS), out-of-band domain of an emission, and spurious domain of an emission; revise the definitions for coordinated universal time (UTC), coordination area, coordination distance, facsimile, geostationary satellite, harmful interference, inclination of an orbit of an earth satellite, telegraphy, and telephony; and make minor editorial modifications to the definitions for administration, broadcasting service, mobile service, permissible interference, power, public correspondence, radio, radiocommunication, safety service, semi-duplex operation, telecommunication, and telegram. In addition, we have corrected a typographical error in the definition for telemetry in § 2.1 and we have revised the definition for UTC in § 73.701. The definitions of these terms are shown in the final rules.

Editorial Amendments

49. We have taken this opportunity to make various non-substantive changes to parts 2, 90, and 97 the Commission's rules. In part 2, we have updated and corrected § 2.1 through § 2.106. The main effect of these actions is to reflect the *WRC–03 Final Acts* in these rule sections; to use consistent terminology in these rules, *e.g.*, Federal and non-Federal; to remove confusing and unnecessary material from the U.S. Table; and to update the FCC rule part cross references. In addition, we have corrected a typographical error in part

90 and revised part 97 to reflect the realignment of allocations above 71 GHz and made other needed editorial revisions.

Final Regulatory Flexibility Analysis

50. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making (Omnibus NPRM)* in ET Docket No. 04–139.[2] The Commission sought written public comment on the proposals in the *Omnibus NPRM*, including comment on the IRFA. No written public comments were received concerning the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.[3]

A. Need for, and Objectives of, the Report and Order

51. In the *Omnibus Report and Order*, the Commission amends parts 2, 25, 73, 90, and 97 of its rules in order to complete its implementation of various allocation decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC–03) concerning the frequency bands between 5900 kHz and 27.5 GHz and to otherwise update its Rules in this frequency range. In general, these changes provide additional licensing opportunities and flexibility for Commission licensees, *e.g.*, international broadcast stations are authorized the use of single sideband and digital transmissions—in addition to double sideband transmissions—in the HF bands between 5900 kHz and 26100 kHz that are allocated to the broadcasting service. The decisions adopted in the *Omnibus Report and Order* conform the Commission's rules, to the extent practical, to the decisions that the international community made at WRC–03 and will collectively promote the advancement of new and expanded services and provide significant benefits to the American public.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

52. There were no comments filed directly in response to the IRFA.

C. Description and Estimate of the Number of Small Entities to Which the Final Rule Will Apply

53. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.[4] The RFA generally defines the term ''small entity'' as having the same meaning as the terms ''small business,'' ''small organization,'' and ''small governmental jurisdiction.'' In addition, the term ''small business'' has the same meaning as the term ''small business concern'' under the Small Business Act, unless the Commission has developed one or more definitions that are appropriate for its activities.[5] Under the Small Business Act, a ''small business concern'' is one that: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[6]

54. A small organization is generally ''any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.''[7] Nationwide, there are approximately 1.6 million small organizations.[8] ''Small governmental jurisdiction'' generally means ''governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000.''[9] As of 1997, there were approximately 87,453 governmental entities in the United States.[10] This number includes 39,044 county governments, municipalities, and townships, of which 37,546 (approximately 96.2%) have populations of fewer then 50,000 and 1,498 have populations of 500,000 or more. Thus, we estimate the number of small governmental jurisdictions overall to be approximately 84,098 or fewer.

55. *Satellite Telecommunications*. The SBA has developed a small business size standard for Satellite Telecommunications, which consists of all such firms having $12.5 million or less in annual receipts.[11] According to Census Bureau data for 1997, there were 324 firms in this category that operated for the entire year.[12] Of this total, 273 firms had annual receipts of under $10 million, and an additional twenty-four firms had receipts of $10 million to $24,999,999.[13] Thus, under this size standard, the majority of firms can be considered small.

56. *Little LEO licensees* operate non-geostationary mobile-satellite systems that provide non-voice services. There are two Little LEO licensees (ORBCOMM and Volunteers in Technical Assistance (VITA)) currently in operation. Another Little LEO licensee (Final Analysis Communication Services, Inc.) has expressed interest in the Little LEO feeder link bands, but it does not yet provide service. The last-listed licensee here is a small business, and the other two might also be small.

57. *Licensees in the Earth Exploration-Satellite Service (EESS)* provide remote sensing services. While there are currently no EESS licensees in the band 25.5–27 GHz, two companies (DigitalGlobe, Inc. and Space Imaging LLC) have expressed interest in using this band in the future. Neither of these EESS licensees (which currently operate in the band 8025–8400 MHz) are small businesses.

58. *Wireless Service Providers.* The SBA has developed a small business size standard for wireless small businesses in the category of Cellular and Other Wireless Telecommunications.[14] Under this SBA category, a wireless business is small if it has 1,500 or fewer employees. According to Commission data,[15] 975 companies reported that they were engaged in the provision of wireless service. Of these 975 companies, an estimated 767 have 1,500 or fewer employees and 208 have more than 1,500 employees.[16] Consequently, the Commission estimates that most wireless service providers are small entities.

59. *Licensees in the Fixed and Mobile Services* in the band 7350–7400 kHz provide conventional Industrial/

[1] *See* 5 U.S.C. 603. The RFA, *see* 5 U.S.C. 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public Law 104–121, Title II, 110 Stat. 857 (1996).

[2] 19 FCC Rcd 6592, 6715 (2004).

[3] 5 U.S.C. 604.

[4] *Id.* at 604(a)(3).

[5] 5 U.S.C. 601(3) (incorporating by reference the definition of ''small-business concern'' in the Small Business Act, 15 U.S.C. 632). Pursuant to 5 U.S.C. 601(3), the statutory definition of a small business applies ''unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the **Federal Register**.''

[6] 15 U.S.C. 632.

[7] 5 U.S.C. 601(4).

[8] Independent Sector, The New Nonprofit Almanac and Desk Reference (2002).

[9] 5 U.S.C. 601(5).

[10] U.S. Census Bureau, Statistical Abstract of the United States: 2000, Section 9, pages 299–300, Tables 490 and 492.

[11] 13 CFR 121.201, NAICS code 517410 (changed from 513340 in October 2002).

[12] U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, ''Establishment and Firm Size (Including Legal Form of Organization),'' Table 4, NAICS code 513340 (issued October 2000).

[13] *Id.*

[14] 13 CFR 121.201, NAICS code 517212.

[15] FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, Trends in Telephone Service at Table 5.3, page 5–5 (May 2004). This source uses data that are current as of October 22, 2003. These estimates include paging.

[16] *Id.*

Business Pool services (41 licensees with 102 licenses), operate Alaska private-fixed stations (11 licensees with 18 licenses), and operate coast stations (3 licensees, each with a single license). We believe that some of the licensees providing conventional Industrial/Business Pool services are small businesses; that almost all of the licensees providing Alaska group services are small businesses; and that all of the licensees providing coast station services are small businesses.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

60. The final rules require that:[17]

• After March 29, 2009, authority to operate in the band 7350–7400 kHz shall not be extended to new non-Federal stations in the fixed and mobile except aeronautical mobile services. After March 29, 2009, non-Federal stations in the fixed and mobile except aeronautical mobile services shall: (1) Be limited to communications wholly 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*.

• Licensees in the Non-Voice Non-Geostationary Mobile-Satellite Service that use the bands 1390–1392 MHz and 1430–1432 MHz for feeder links (Little LEO feeder links) operate on a secondary basis. The completion of ITU–R studies on all identified compatibility issues as shown in Annex 1 of Resolution 745 (WRC–2003) are required prior to the use of the Little LEO feeder links. Any use of these feeder link allocations are subject to further compatibility decisions by 2007 World Radiocommunication Conference. Engineering skills would be needed in order to perform the required studies.

• EESS applicants in the band 25.5–27 GHz are required to do a technical analysis of the interference potential between their proposed operations and Federal operations, *i.e.*, an electromagnetic compatibility analysis.[18] Engineering skills would be needed in order to perform the analysis. The power flux-density at the Earth's surface produced by emissions from an EESS space station must be in accordance with the ITU *Radio Regulations*.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered.

61. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.[19]

62. The Commission reallocated the band 7350–7400 kHz from the fixed and mobile services to the broadcasting service, effective March 29, 2009, and will cease issuing licenses for new stations in the fixed and mobile services as of that date. The phase-in of these rules provide affected entities, including small entities, with a reasonable amount of time in which to relocate to other spectrum allocated to the fixed and mobile services, thus minimizing the impact of our actions. In addition, the new broadcasting service allocation will provide new opportunities for international broadcasters that are small businesses.

63. The Commission had conditionally allocated the Little LEO feeder links on a primary basis, subject to the outcome of WRC–03. At WRC–03, the United States was unable to secure a primary allocation, but was able to garner conditional support for a worldwide secondary allocation for Little LEO feeder links. Based on the international allocation, the Commission has changed the allocation status of the Little LEO feeder links from primary to secondary. Because the Commission has not yet licensed the Little LEO feeder links, no licensee is directly impacted by this decision. Continued allocation for Little LEO feeder links in this band will provide opportunities for small businesses within the context of international agreements.

64. *Report to Congress:* The Commission will send a copy of the Report and Order, including this FRFA, in a report to Congress and the Government Accountability Office, pursuant to the Congressional Review Act.[20] In addition, the Commission will send a copy of the Report and Order, including the FRFA, to the Chief Counsel for Advocacy of the SBA.

Ordering Clauses

65. Pursuant to sections 1, 4(i), 7(a), 301, 302(a), 303(c), 303(f), 303(g), 303(r), 307, 308, 316, and 332 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(i), 157(a), 301, 302(a), 303(c), 303(f), 303(g), 303(r), 307, 308, 316, and 332, the report and order is hereby adopted.

66. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, shall send a copy of this report and order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

List of Subjects

Part 2

Radio, telecommunications.

Part 25

Radio, satellites.

Parts 73, 90 and 97

Radio.

Federal Communications Commission.

Marlene H. Dortch,

Secretary.

Rule Changes

■ For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2, 25, 73, 90, and 97 as follows:

PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;

General Rules and Regulations

■ 1. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

■ 2. Section 2.1 is amended as follows:

■ a. By revising paragraph (b);

■ b. In paragraph (c), by adding the definitions of Adaptive System, Administration, Frequency Assignment Subcommittee, Government Master File, High Altitude Platform Station, Interdepartment Radio Advisory Committee, International Telecommunication Union, National Telecommunications and Information Administration, Out-of-band domain (of an emission), Spurious domain (of an emission);

■ c. In paragraph (c), by revising the definitions of Broadcasting Service,

[17] *See also Omnibus Report and Order* at paragraph 2 (Executive Summary).

[18] *See* paragraphs 87–88 of the Report and Order.

[19] 5 U.S.C. 603(c).

[20] *See* 5 U.S.C. 801(a)(1)(A).

Coordinated Universal Time, Coordination Area, Coordination Distance, Facsimile, Geostationary Satellite, Harmful Interference, Inclination of an Orbit (of an earth satellite), Mobile Service, Permissible Interference, Power, Public Correspondence, Radio, Radiocommunication, Safety Service, Semi-Duplex Operation, Simplex Operation, Telecommunication, Telegram, Telegraphy, Telemetry, and Telephony; and

■ d. In paragraph (c), by revising the designation of Footnote 2 in the definition of Duplex Operations to be designated as Footnote 3.

The additions and revisions read as follows:

§ 2.1 Terms and definitions.

(a) * * *

(b) The source of each definition is indicated as follows:

CS—Annex to the Constitution of the International Telecommunication Union (ITU)

CV—Annex to the Convention of the ITU

FCC—Federal Communications Commission

RR—ITU Radio Regulations

(c) The following terms and definitions are issued:

* * * * *

Adaptive System. A radiocommunication system which varies its radio characteristics according to channel quality. (RR)

Administration. Any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations. (CS)

* * * * *

Broadcasting Service. A radiocommunication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmissions, television transmissions or other types of transmission. (CS)

* * * * *

Coordinated Universal Time (UTC). Time scale, based on the second (SI), as defined in Recommendation ITU–R TF.460–6.

Note: For most practical purposes associated with the ITU *Radio Regulations*, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT. (RR)

Coordination Area. When determining the need for coordination, the area surrounding an earth station sharing the same frequency band with terrestrial stations, or surrounding a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the level of permissible interference will not be exceeded and coordination is therefore not required. (RR)

* * * * *

Coordination Distance. When determining the need for coordination, the distance on a given azimuth from an earth station sharing the same frequency band with terrestrial stations, or from a transmitting earth station sharing the same bidirectionally allocated frequency band with receiving earth stations, beyond which the level of permissible interference will not be exceeded and coordination is therefore not required. (RR)

* * * * *

Facsimile. A form of telegraphy for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form. (RR)

* * * * *

Frequency Assignment Subcommittee (FAS). A subcommittee of the Interdepartment Radio Advisory Committee (IRAC) within NTIA that develops and executes procedures for the assignment and coordination of Federal radio frequencies. (FCC)

* * * * *

Geostationary Satellite. A geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth. (RR)

Government Master File (GMF). NTIA's database of Federal assignments. It also includes non-Federal authorizations coordinated with NTIA for the bands allocated for shared Federal and non-Federal use. (FCC)

* * * * *

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 ITU] Radio Regulations. (CS)

High Altitude Platform Station (HAPS). A station located on an object at an altitude of 20 to 50 km and at a specified, nominal, fixed point relative to the Earth. (RR)

* * * * *

Inclination of an Orbit (of an earth satellite). The angle determined by the plane containing the orbit and the plane of the Earth's equator measured in degrees between 0° and 180° and in counter-clockwise direction from the Earth's equatorial plane at the ascending node of the orbit. (RR)

* * * * *

Interdepartment Radio Advisory Committee (IRAC). A committee of the Federal departments, agencies, and administrations that advises NTIA in assigning frequencies to Federal radio stations and in developing and executing policies, programs, procedures, and technical criteria pertaining to the allocation, management, and use of the spectrum. The IRAC consists of a main committee, subcommittees, and several ad hoc groups that consider various aspects of spectrum management policy. The FCC serves as a member of the Frequency Assignment Subcommittee and as Liaison Representative on the main committee, all other subcommittees and ad hoc groups. (FCC)

International Telecommunication Union (ITU). An international organization within the United Nations System where governments and the private sector coordinate global telecom networks and services. The ITU is headquartered in Geneva, Switzerland and its internet address is *www.itu.int*. (FCC)

* * * * *

Mobile Service. A radiocommunication service between mobile and land stations, or between mobile stations. (CV)

* * * * *

National Telecommunications and Information Administration (NTIA). An agency of the United States Department of Commerce that serves as the President's principal advisor on telecommunications and information policy issues. NTIA manages Federal use of the radio spectrum and coordinates Federal use with the FCC. NTIA sets forth regulations for Federal use of the radio spectrum within its *Manual of Regulations & Procedures for Federal Radio Frequency Management (NTIA Manual).* (FCC)

* * * * *

Out-of-band domain (of an emission). The frequency range, immediately outside the necessary bandwidth but excluding the spurious domain, in which out-of-band emissions generally predominate. Out-of-band emissions, defined based on their source, occur in the out-of-band domain and, to a lesser extent, in the spurious domain. Spurious emissions likewise may occur

in the out-of-band domain as well as in the spurious domain. (RR)

* * * * *

Permissible Interference.[3] Observed or predicted interference which complies with quantitative interference and sharing criteria contained in these [ITU Radio] Regulations or in ITU–R Recommendations or in special agreements as provided for in these Regulations. (RR)

* * * * *

Power. Whenever the power of a radio transmitter, *etc.* is referred to it shall be expressed in one of the following forms, according to the class of emission, using the arbitrary symbols indicated:

(1) Peak envelope power (PX or pX);
(2) Mean power (PY or pY);
(3) Carrier power (PZ or pZ).

Note 1: For different classes of emission, the relationships between peak envelope power, mean power and carrier power, under the conditions of normal operation and of no modulation, are contained in ITU–R Recommendations which may be used as a guide.

Note 2: For use in formulae, the symbol p denotes power expressed in watts and the symbol P denotes power expressed in decibels relative to a reference level. (RR)

* * * * *

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

* * * * *

Radio. A general term applied to the use of radio waves. (RR)

* * * * *

Radiocommunication. Telecommunication by means of radio waves. (CS) (CV)

* * * * *

Safety Service. Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property. (RR)

* * * * *

Semi-Duplex Operation.[4] A method which is simplex operation on one end of the circuit and duplex operation at the other. (RR)

* * * * *

Simplex Operation.[4] Operating method in which transmission is made possible alternatively in each direction of a telecommunication channel, for example, by means of manual control.

* * * * *

Spurious domain (of an emission): The frequency range beyond the out-of-band domain in which spurious emissions generally predominate. (RR)

* * * * *

Telecommunication. Any transmission, emission or reception of signs, signals, writings, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems. (CS)

* * * * *

Telegram. Written matter intended to be transmitted by telegraphy for delivery to the addressee. This term also includes radiotelegrams unless otherwise specified. (CS)

Note: In this definition the term telegraphy has the same general meaning as defined in the Convention.

Telegraphy.[5] A form of telecommunication in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use. (CS)

Telemetry. The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument. (RR)

Telephony. A form of telecommunication primarily intended for the exchange of information in the form of speech. (CS)

* * * * *

■ 3. Section 2.100 is revised to read as follows:

§ 2.100 International regulations in force.

The ITU *Radio Regulations*, edition of 2004, have been incorporated to the extent practicable in Subparts A and B of this part.

■ 4. Section 2.101 is revised to read as follows:

§ 2.101 Frequency and wavelength bands.

(a) The radio spectrum shall be subdivided into nine frequency bands, which shall be designated by progressive whole numbers in accordance with the following table. As the unit of frequency is the hertz (Hz), frequencies shall be expressed:

(1) In kilohertz (kHz), up to and including 3 000 kHz;

(2) In megahertz (MHz), above 3 MHz, up to and including 3 000 MHz;

(3) In gigahertz (GHz), above 3 GHz, up to and including 3 000 GHz.

(b) However, where adherence to these provisions would introduce serious difficulties, for example in connection with the notification and registration of frequencies, the lists of frequencies and related matters, reasonable departures may be made.

Band number	Symbols	Frequency range (lower limit exclusive, upper limit inclusive)	Corresponding metric subdivision	Metric abbreviations for the bands
4	VLF	3 to 30 kHz	Myriametric waves	B.Mam.
5	LF	30 to 300 kHz	Kilometric waves	B.km.
6	MF	300 to 3 000 kHz	Hectometric waves	B.hm.
7	HF	3 to 30 MHz	Decametric waves	B.dam.
8	VHF	30 to 300 MHz	Metric waves	B.m.
9	UHF	300 to 3 000 MHz	Decimetric waves	B.dm.
10	SHF	3 to 30 GHz	Centimetric waves	B.cm.
11	EHF	30 to 300 GHz	Millimetric waves	B.mm.
12		300 to 3 000 GHz	Decimillimetric waves	

Note 1: "Band N" (N = band number) extends from 0.3×10^N Hz to 3×10^N Hz.
Note 2: Prefix: k = kilo (10^3), M = mega (10^6), G = giga (10^9).

(c) In communications between administrations and the ITU, no names, symbols or abbreviations should be used for the various frequency bands other than those specified in this section.

■ 5. Section 2.102 is amended by revising paragraphs (a), (b)(3), (c) introductory text, (c)(1), (c)(3), (c)(4), (e),

[3] See footnote under Accepted Interference.

[4] *See* footnote under Duplex Operation.

[5] A graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

(g) introductory text, and (h) introductory text to read as follows.

§ 2.102 Assignment of frequencies.

(a) Except as otherwise provided in this section, the assignment of frequencies and bands of frequencies to all stations and classes of stations and the licensing and authorizing of the use of all such frequencies between 9 kHz and 275 GHz, and the actual use of such frequencies for radiocommunication or for any other purpose, including the transfer of energy by radio, shall be in accordance with the Table of Frequency Allocations in § 2.106.

(b) * * *

(3) Experimental stations, pursuant to part 5 of this chapter, may be authorized the use of any frequency or frequency band not exclusively allocated to the passive services (including the radio astronomy service).

* * * * *

(c) Non-Federal stations may be authorized to use Federal frequencies in the bands above 25 MHz if the Commission finds, after consultations with the appropriate Federal agency or agencies, that such use is necessary for coordination of Federal and non-Federal activities: Provided, however, that:

(1) Non-Federal operation on Federal frequencies shall conform with the conditions agreed upon by the Commission and NTIA (the more important of which are contained in paragraphs (c)(2), (c)(3), and (c)(4) of this section);

* * * * *

(3) Such operations shall not cause harmful interference to Federal stations and, should harmful interference result, that the interfering non-Federal operation shall immediately terminate; and

(4) Non-Federal operation has been certified as necessary by the Federal agency involved and this certification has been furnished, in writing, to the non-Federal licensee with which communication is required.

* * * * *

(e) Non-Federal services operating on frequencies in the band 25–50 MHz must recognize that it is shared with various services of other countries; that harmful interference may be caused by skywave signals received from distant stations of all services of the United States and other countries radiating power on frequencies in this band; and that no protection from such harmful interference generally can be expected. Persons desiring to avoid such harmful interference should consider operation on available frequencies higher in the radio spectrum not generally subject to this type of difficulty.

* * * * *

(g) In the bands above 25 MHz which are allocated to the non-Federal land mobile service, fixed stations may be authorized on the following conditions:

* * * * *

(h) Special provisions regarding the use of spectrum allocated to the fixed and land mobile services below 25 MHz by non-Federal stations.

* * * * *

■ 6. Section 2.103 is amended by revising the section heading and paragraphs (a) introductory text, (a)(1), (a)(3), (a)(4), and (b).

§ 2.103 Federal use of non-Federal frequencies.

(a) Federal stations may be authorized to use non-Federal frequencies in the bands above 25 MHz (except the 764–776 MHz and 794–806 MHz public safety bands) if the Commission finds that such use is necessary for coordination of Federal and non-Federal activities: Provided, however, that:

(1) Federal operation on non-Federal frequencies shall conform with the conditions agreed upon by the Commission and NTIA (the more important of which are contained in paragraphs (a)(2), (a)(3) and (a)(4) of this section);

* * * * *

(3) Such operations shall not cause harmful interference to non-Federal stations and, should harmful interference result, that the interfering Federal operation shall immediately terminate; and

(4) Federal operation has been certified as necessary by the non-Federal licensees involved and this certification has been furnished, in writing, to the Federal agency with which communication is required.

(b) Federal stations may be authorized to use channels in the 764–776 MHz, 794–806 MHz and 4940–4990 MHz public safety bands with non-Federal entities if the Commission finds such use necessary; where:

(1) The stations are used for interoperability or part of a Federal/non-Federal shared or joint-use system;

(2) The Federal entity obtains the approval of the non-Federal (State/local government) licensee(s) or applicant(s) involved;

(3) Federal operation is in accordance with the Commission's Rules governing operation of this band and conforms with any conditions agreed upon by the Commission and NTIA; and

(4) Interoperability, shared or joint-use systems are the subject of a mutual agreement between the Federal and non-Federal entities. This section does not preclude other arrangements or agreements as permitted under part 90 of the rules. See 47 CFR 90.179 and 90.421 of this chapter.

■ 7. Section 2.104 is amended by revising paragraphs (b)(1), (b)(3), (c)(2), (c)(4)(ii)(B), (c)(4)(iii), (g), and (h)(5).

§ 2.104 International Table of Frequency Allocations.

* * * * *

(b) * * *

(1) *Region 1.* Region 1 includes the area limited on the east by line A (lines A, B and C are defined below) and on the west by line B, excluding any of the territory of the Islamic Republic of Iran which lies between these limits. It also includes the whole of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of the Russian Federation which lies between lines A and C.

* * * * *

(3) *Region 3.* Region 3 includes the area limited on the east by line C and on the west by line A, except any of the territory of Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey and Ukraine and the area to the north of the Russian Federation. It also includes that part of the territory of the Islamic Republic of Iran lying outside of those limits.

* * * * *

(c) * * *

(2) The ''European Broadcasting Area'' is bounded on the west by the western boundary of Region 1, on the east by the meridian 40° East of Greenwich and on the south by the parallel 30° North so as to include the northern part of Saudi Arabia and that part of those countries bordering the Mediterranean within these limits. In addition, Iraq, Jordan and that part of the territory of the Syrian Arab Republic, Turkey and Ukraine lying outside the above limits are included in the European Broadcasting Area.

* * * * *

(4) * * *

(ii) * * *

(B) That part of Libyan Arab Jamahiriya north of parallel 30° North.

(iii) In Region 2, the Tropical Zone may be extended to parallel 33° North, subject to special agreements between the countries concerned in that Region

(see Article 6 of the ITU *Radio Regulations*).

* * * * *

(g) *Miscellaneous provisions.* (1) Where it is indicated in the International Table that a service or stations in a service may operate in a specific frequency band subject to not causing harmful interference to another service or to another station in the same service, this means also that the service which is subject to not causing harmful interference cannot claim protection from harmful interference caused by the other service or other station in the same service.

(2) Where it is indicated in the International Table that a service or stations in a service may operate in a specific frequency band subject to not claiming protection from another service or from another station in the same service, this means also that the service which is subject to not claiming protection shall not cause harmful interference to the other service or other station in the same service.

(3) Except if otherwise specified in a footnote, the term ''fixed service'', where appearing in the International Table, does not include systems using ionospheric scatter propagation.

(h) * * *

(5) The footnote references which appear in the International Table below the allocated service or services apply to more than one of the allocated services, or to the whole of the allocation concerned.

* * * * *

■ 8. Section 2.105 is amended by revising paragraphs (a), (b), (c)(1) introductory text, (d)(1), (d)(2), (d)(3), and (d)(5), by removing paragraph (d)(6), and by adding paragraphs (e) and (f) to read as follows:

§ 2.105 United States Table of Frequency Allocations.

(a) The United States Table of Frequency Allocations (United States Table) is subdivided into the Federal Table of Frequency Allocations (Federal Table, column 4 of § 2.106) and the non-Federal Table of Frequency Allocations (non-Federal Table, column 5 of § 2.106). The United States Table is based on the Region 2 Table because the relevant area of jurisdiction is located primarily in Region 2[1] (*i.e.*, the 50 States, the District of Columbia, the Caribbean insular areas,[2] and some of the Pacific insular areas).[3] [4] The Federal Table is administered by NTIA [5] and the non-Federal Table is administered by the Federal Communications Commission (FCC).[6]

(b) In the United States, radio spectrum may be allocated to either Federal or non-Federal use exclusively, or for shared use. In the case of shared use, the type of service(s) permitted need not be the same [*e.g.*, Federal FIXED, non-Federal MOBILE]. The terms used to designate categories of services and allocations [7] in columns 4 and 5 of § 2.106 correspond to the terms in the ITU *Radio Regulations.*

(c) * * *

(1) Any segment of the radio spectrum may be allocated to the Federal and/or non-Federal sectors either on an exclusive or shared basis for use by one or more radio services. In the case where an allocation has been made to more than one service, such services are listed in the following order:

* * * * *

(d) * * *

(1) The frequency band referred to in each allocation, column 4 for Federal operations and column 5 for non-Federal operations, is indicated in the left-hand top corner of the column. If there is no service or footnote indicated for a band of frequencies in column 4, then the Federal sector has no access to that band except as provided for by § 2.103. If there is no service or footnote indicated for a band of frequencies in column 5, then the non-Federal sector has no access to that band except as provided for by § 2.102.

(2) When the Federal Table and the non-Federal Table are exactly the same for a shared band, the line between columns 4 and 5 is deleted and the allocations are shown once.

(3) The Federal Table, given in column 4, is included for informational purposes only.

* * * * *

(5) The following symbols are used to designate footnotes in the United States Table:

(i) Any footnote consisting of ''5.'' followed by one or more digits, *e.g.*, 5.53, denotes an international footnote. Where an international footnote is applicable, without modification, to both Federal and non-Federal operations, the Commission places the footnote in both the Federal Table and the non-Federal Table (columns 4 and 5) and the international footnote is binding on both Federal users and non-Federal licensees. If, however, an international footnote pertains to a service allocated only for Federal or non-Federal use, the international footnote will be placed only in the affected Table. For example, footnote 5.142 pertains only to the amateur service, and thus, footnote 5.142 is shown only in the non-Federal Table.

(ii) Any footnote consisting of the letters ''US'' followed by one or more digits, *e.g.*, US7, denotes a stipulation affecting both Federal and non-Federal operations. United States footnotes appear in both the Federal Table and the non-Federal Table.

(iii) Any footnote consisting of the letters ''NG'' followed by one or more digits, *e.g.*, NG2, denotes a stipulation applicable only to non-Federal operations. Non-Federal footnotes appear solely in the non-Federal Table (column 5).

(iv) Any footnote consisting of the letter ''G'' following by one or more digits, *e.g.*, G2, denotes a stipulation applicable only to Federal operations. Federal footnotes appear solely in the Federal Table (column 4).

(e) *Rule Part Cross References.* If a frequency or frequency band has been allocated to a radiocommunication service in the non-Federal Table, then a cross reference may be added for the pertinent FCC Rule part (column 6 of § 2.106). For example, the band 849–851 MHz is allocated to the aeronautical mobile service for non-Federal use, rules for the use of the 849—851 MHz band have been added to Part 22—Public Mobile Services (47 CFR part 22), and a cross reference, Public Mobile (22), has been added in column 6 of § 2.106. The exact use that can be made of any given frequency or frequency band (*e.g.*, channelling plans, allowable emissions, *etc.*) is given in the FCC Rule part(s) so indicated. The FCC Rule parts in this column are not allocations and are provided for informational purposes only. This column also may contain explanatory notes for informational purposes only.

(f) The Commission updates § 2.106 shortly after a final rule that revises that section is released. The address for the FCC Radio Spectrum Home Page, which includes the FCC Online Table of Frequency Allocations and the FCC Allocation History File, is *http://www.fcc.gov/oet/spectrum/.*

[1] *See* 2.104(b) for definitions of the ITU Regions.

[2] The Caribbean insular areas are Puerto Rico, the United States Virgin Islands, and Navassa Island.

[3] The Pacific insular areas located in Region 2 are Johnston Atoll and Midway Atoll.

[4] The operation of stations in the Pacific insular areas located in Region 3 are generally governed by the Region 3 Table (*i.e.*, column 3 of 2.106). The Pacific insular areas located in Region 3 are American Samoa, Guam, the Northern Mariana Islands, Baker Island, Howland Island, Jarvis Island, Kingman Reef, Palmyra Island, and Wake Island.

[5] Section 305(a) of the Communications Act of 1934, as amended. See Public Law 102–538, 106 Stat. 3533 (1992).

[6] The Communications Act of 1934, as amended.

[7] The radio services are defined in § 2.1.

■ 9. Section 2.106, the Table of Frequency Allocations, is amended as follows:

■ a. Revise the entire Table.

■ b. In the list of International footnotes, revise footnotes 5.56, 5.58, 5.68, 5.70, 5.79A, 5.82, 5.87, 5.96, 5.98, 5.99, 5.107, 5.112, 5.114, 5.117, 5.118, 5.134, 5.136, 5.139, 5.140, 5.142, 5.143, 5.146, 5.151, 5.152, 5.154, 5.155, 5.163, 5.164, 5.174, 5.177, 5.179, 5.181, 5.203B, 5.204, 5.210, 5.212, 5.221, 5.237, 5.254, 5.262, 5.271, 5.273, 5.277, 5.287, 5.288, 5.294, 5.296, 5.311, 5.312, 5.316, 5.323, 5.328A, 5.329, 5.330, 5.331, 5.334, 5.338, 5.345, 5.347, 5.348, 5.348A, 5.351A, 5.355, 5.359, 5.362B, 5.369, 5.381, 5.382, 5.386, 5.387, 5.388A, 5.395, 5.396, 5.400, 5.416, 5.418, 5.418A, 5.418B, 5.418C, 5.422, 5.428, 5.429, 5.430, 5.431, 5.443B, 5.444, 5.444A, 5.447E, 5.453, 5.454, 5.455, 5.456, 5.457A, 5.460, 5.466, 5.468, 5.469, 5.473, 5.477, 5.478, 5.481, 5.482, 5.483, 5.494, 5.495, 5.500, 5.501, 5.502, 5.503, 5.504C, 5.505, 5.506A, 5.506B, 5.508, 5.508A, 5.509A, 5.512, 5.514, 5.516B, 5.521, 5.530, 5.536A, 5.537A, 5.538, 5.543A, 5.545, 5.546, 5.547C, 5.548, 5.549, 5.550, 5.551I, and 5.552A; add footnotes 5.138A, 5.141A, 5.141B, 5.141C, 5.143A, 5.143B, 5.143C, 5.143D, 5.143E, 5.256A, 5.279A, 5.339A, 5.347A, 5.348B, 5.348C, 5.379B, 5.379C, 5.379D, 5.379E, 5.380A, 5.388B, 5.417A, 5.417B, 5.417C, 5.417D, 5.424A, 5.516A, 5.536C, 5.549A, and 5.555B; and remove footnotes 5.377, 5.389D, 5.421, 5.443A, 5.467, 5.503A, 5.534, 5.551A, and 5.555A.

■ c. In the list of United States (US) footnotes, revise footnotes US18, US25, US32, US41, US44, US48, US49, US50, US51, US53, US58, US74, US77, US80, US81, US82, US87, US104, US106, US107, US108, US110, US112, US116, US209, US210, US217, US218, US220, US224, US225, US229, US230, US231, US240, US244, US252, US258, US262, US266, US268, US275, US281, US282, US283, US296, US298, US300, US303, US310, US316, US319, US320, US321, US324, US325, US334, US335, US339, US340, US342, US344, US347, US348, US349, US350, US351, US352, US359, US360, US361, US362, US366, US367, US368, US378, US380, US382, US384, US389, US390, and US391; remove footnotes US238, US370, US385, and US386; and add footnotes US394, US395, US396, US397, and US398.

■ d. In the list of non-Federal Government (NG) footnotes, revise footnotes NG42, NG134, NG142, NG152, NG160, and NG169; and remove footnotes NG129, NG151, and NG176.

■ e. In the list of Federal Government (G) footnotes, revise footnotes G2, G8, G11, G31, G32, G42, G56, G59, G110, G117, G118, G123, G124, G129, G130, G131; and add footnotes G132 and G133.

§ 2.106 Table of Frequency Allocations.

The revisions and additions read as follows:

BILLING CODE 6712–01–P

Table of Frequency Allocations		0-275 kHz (VLF/LF)			Page 1
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
Below 9 (Not Allocated) 5.53 5.54			Below 9 (Not Allocated) 5.53 5.54		
9-14 RADIONAVIGATION			9-14 RADIONAVIGATION US18 US294		
14-19.95 FIXED MARITIME MOBILE 5.57 5.55 5.56			14-19.95 FIXED MARITIME MOBILE 5.57 US294	14-19.95 Fixed US294	
19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz)			19.95-20.05 STANDARD FREQUENCY AND TIME SIGNAL (20 kHz) US294		
20.05-70 FIXED MARITIME MOBILE 5.57 5.56 5.58			20.05-59 FIXED MARITIME MOBILE 5.57 US294	20.05-59 FIXED US294	
			59-61 STANDARD FREQUENCY AND TIME SIGNAL (60 kHz) US294		
			61-70 FIXED MARITIME MOBILE 5.57 US294	61-70 FIXED US294	
70-72 RADIONAVIGATION 5.60	70-90 FIXED MARITIME MOBILE 5.57 MARITIME RADIONAVIGATION 5.60 Radiolocation 5.61	70-72 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59	70-90 FIXED MARITIME MOBILE 5.57 Radiolocation US294	70-90 FIXED Radiolocation US294	Private Land Mobile (90)
72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60 5.56		72-84 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			
84-86 RADIONAVIGATION 5.60		84-86 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.57 5.59			
86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.56		86-90 FIXED MARITIME MOBILE 5.57 RADIONAVIGATION 5.60			

90-110 RADIONAVIGATION 5.62 Fixed 5.64			90-110 RADIONAVIGATION 5.62 US18 US104 US294		Aviation (87) Private Land Mobile (90)
110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	110-130 FIXED MARITIME MOBILE MARITIME RADIONAVIGATION 5.60 Radiolocation	110-112 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	110-130 FIXED MARITIME MOBILE Radiolocation		Maritime (80) Private Land Mobile (90)
112-115 RADIONAVIGATION 5.60		112-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65			
115-117.6 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.66					
117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64		117.6-126 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64			
126-129 RADIONAVIGATION 5.60		126-129 RADIONAVIGATION 5.60 Fixed Maritime mobile 5.64 5.65			
129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	5.61 5.64	129-130 FIXED MARITIME MOBILE RADIONAVIGATION 5.60 5.64	5.64 US294		
130-148.5 FIXED MARITIME MOBILE 5.64 5.67	130-160 FIXED MARITIME MOBILE 5.64	130-160 FIXED MARITIME MOBILE RADIONAVIGATION 5.64	130-160 FIXED MARITIME MOBILE 5.64 US294		Maritime (80)
148.5-255 BROADCASTING	160-190 FIXED	160-190 FIXED Aeronautical radionavigation	160-190 FIXED MARITIME MOBILE US294	160-190 FIXED US294	Aviation (87)
	190-200 AERONAUTICAL RADIONAVIGATION		190-200 AERONAUTICAL RADIONAVIGATION US18 US226 US294		
5.68 5.69 5.70 255-283.5 BROADCASTING AERONAUTICAL RADIONAVIGATION 5.70 5.71	200-275 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	200-275 AERONAUTICAL RADIONAVIGATION US18 Aeronautical mobile US294		

Table of Frequency Allocations — 275-2065 kHz (LF/MF) — Page 3

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	(See previous page)	275-285 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons) US18 US294		Aviation (87)
283.5-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73 5.72 5.74	285-315 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73		285-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation (radiobeacons) US18 US294 US364		
315-325 AERONAUTICAL RADIONAVIGATION Maritime radionavigation (radiobeacons) 5.73 5.72 5.75	315-325 MARITIME RADIONAVIGATION (radiobeacons) 5.73 Aeronautical radionavigation	315-325 AERONAUTICAL RADIONAVIGATION MARITIME RADIONAVIGATION (radiobeacons) 5.73			
325-405 AERONAUTICAL RADIONAVIGATION 5.72	325-335 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Maritime radionavigation (radiobeacons)	325-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile	325-335 AERONAUTICAL RADIONAVIGATION (radiobeacons) Aeronautical mobile Maritime radionavigation (radiobeacons) US18 US294		
	335-405 AERONAUTICAL RADIONAVIGATION Aeronautical mobile		335-405 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 Aeronautical mobile US294		
405-415 RADIONAVIGATION 5.76 5.72	405-415 RADIONAVIGATION 5.76 Aeronautical mobile		405-415 RADIONAVIGATION 5.76 US18 Aeronautical mobile US294		Maritime (80) Aviation (87)
415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION 5.72	415-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.80		415-435 MARITIME MOBILE 5.79 AERONAUTICAL RADIONAVIGATION US294		
435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.72 5.82	5.77 5.78 5.82		435-495 MARITIME MOBILE 5.79 5.79A Aeronautical radionavigation 5.82 US231 US294	435-495 MARITIME MOBILE 5.79 5.79A 5.82 US231 US294	Maritime (80)
495-505 MOBILE (distress and calling) 5.83			495-505 MOBILE (distress and calling) 5.83		Maritime (80) Aviation (87)
505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION 5.72	505-510 MARITIME MOBILE 5.79	505-526.5 MARITIME MOBILE 5.79 5.79A 5.84 AERONAUTICAL RADIONAVIGATION Aeronautical mobile Land mobile	505-510 MARITIME MOBILE 5.79		Maritime (80)
	510-525 MOBILE 5.79A 5.84 AERONAUTICAL RADIONAVIGATION		510-525 MARITIME MOBILE (ships only) 5.79A 5.84 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 US14 US225		Maritime (80) Aviation (87)

526.5-1606.5 BROADCASTING	525-535 BROADCASTING 5.86 AERONAUTICAL RADIONAVIGATION	526.5-535 BROADCASTING Mobile 5.88	525-535 AERONAUTICAL RADIONAVIGATION (radiobeacons) US18 MOBILE US221 US239		Aviation (87) Private Land Mobile (90)
5.87 5.87A	535-1605 BROADCASTING	535-1606.5 BROADCASTING	535-1605 US321	535-1605 BROADCASTING US321 NG128	Radio Broadcast (AM)(73) Auxiliary Broadcast (74) Alaska Fixed (80)
1606.5-1625 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92	1605-1625 BROADCASTING 5.89 5.90	1606.5-1800 FIXED MOBILE RADIOLOCATION RADIONAVIGATION	1605-1615 MOBILE US221 US321 1615-1705 US299 US321	1605-1705 BROADCASTING 5.89 US299 US321 NG128	
1625-1635 RADIOLOCATION 5.93	1625-1705 FIXED MOBILE BROADCASTING 5.89 Radiolocation 5.90				
1635-1800 FIXED MARITIME MOBILE 5.90 LAND MOBILE 5.92 5.96	1705-1800 FIXED MOBILE RADIOLOCATION AERONAUTICAL RADIONAVIGATION	5.91	1705-1800 FIXED MOBILE RADIOLOCATION US240		Maritime (80) Private Land Mobile (90)
1800-1810 RADIOLOCATION 5.93	1800-1850 AMATEUR	1800-2000 AMATEUR FIXED MOBILE except aeronautical mobile RADIONAVIGATION Radiolocation	1800-1900	1800-1900 AMATEUR	Amateur (97)
1810-1850 AMATEUR 5.98 5.99 5.100 5.101					
1850-2000 FIXED MOBILE except aeronautical mobile 5.92 5.96 5.103	1850-2000 AMATEUR FIXED MOBILE except aeronautical mobile RADIOLOCATION RADIONAVIGATION 5.102	5.97	1900-2000 RADIOLOCATION US290		Private Land Mobile (90) Amateur (97)
2000-2025 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103	2000-2065 FIXED MOBILE		2000-2065 FIXED MOBILE US340	2000-2065 MARITIME MOBILE NG19 US340	Maritime (80)
2025-2045 FIXED MOBILE except aeronautical mobile (R) Meteorological aids 5.104 5.92 5.103					

Table of Frequency Allocations — 2065-4438 kHz (MF/HF) — Page 5

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2045-2160 FIXED MARITIME MOBILE LAND MOBILE 5.92	(See previous page)		(See previous page)		
	2065-2107 MARITIME MOBILE 5.105 5.106		2065-2107 MARITIME MOBILE 5.105 US296 US340		Maritime (80)
2160-2170 RADIOLOCATION 5.93 5.107	2107-2170 FIXED MOBILE		2107-2170 FIXED MOBILE US340	2107-2170 FIXED LAND MOBILE MARITIME MOBILE NG19 US340	Maritime (80) Private Land Mobile (90)
2170-2173.5 MARITIME MOBILE			2170-2173.5 MARITIME MOBILE (telephony) US340	2170-2173.5 MARITIME MOBILE US340	Maritime (80)
2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111			2173.5-2190.5 MOBILE (distress and calling) 5.108 5.109 5.110 5.111 US279 US340		Maritime (80) Aviation (87)
2190.5-2194 MARITIME MOBILE			2190.5-2194 MARITIME MOBILE (telephony) US340	2190.5-2194 MARITIME MOBILE US340	Maritime (80)
2194-2300 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.112	2194-2300 FIXED MOBILE 5.112		2194-2495 FIXED MOBILE US340	2194-2495 FIXED LAND MOBILE MARITIME MOBILE NG19 US340	Maritime (80) Aviation (87) Private Land Mobile (90)
2300-2498 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.103	2300-2495 FIXED MOBILE BROADCASTING 5.113				
2498-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)	2495-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz)		2495-2501 STANDARD FREQUENCY AND TIME SIGNAL (2500 kHz) US340		
2501-2502 STANDARD FREQUENCY AND TIME SIGNAL Space research			2501-2502 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	2501-2502 STANDARD FREQUENCY AND TIME SIGNAL US340	
2502-2625 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103 5.114	2502-2505 STANDARD FREQUENCY AND TIME SIGNAL		2502-2505 STANDARD FREQUENCY AND TIME SIGNAL US340		
2625-2650 MARITIME MOBILE MARITIME RADIONAVIGATION 5.92	2505-2850 FIXED MOBILE		2505-2850 FIXED MOBILE	2505-2850 FIXED LAND MOBILE MARITIME MOBILE	Maritime (80) Aviation (87) Private Land Mobile (90)
2650-2850 FIXED MOBILE except aeronautical mobile (R) 5.92 5.103			US285 US340	US285 US340	

2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115			2850-3025 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340		Aviation (87)
3025-3155 AERONAUTICAL MOBILE (OR)			3025-3155 AERONAUTICAL MOBILE (OR) US340		
3155-3200 FIXED MOBILE except aeronautical mobile (R) 5.116 5.117			3155-3230 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Private Land Mobile (90)
3200-3230 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113 5.116					
3230-3400 FIXED MOBILE except aeronautical mobile BROADCASTING 5.113 5.116 5.118			3230-3400 FIXED MOBILE except aeronautical mobile Radiolocation US340		Maritime (80) Aviation (87) Private Land Mobile (90)
3400-3500 AERONAUTICAL MOBILE (R)			3400-3500 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
3500-3800 AMATEUR FIXED MOBILE except aeronautical mobile 5.92	3500-3750 AMATEUR 5.119	3500-3900 AMATEUR FIXED MOBILE	3500-4000	3500-4000 AMATEUR	Amateur (97)
3800-3900 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	3750-4000 AMATEUR FIXED MOBILE except aeronautical mobile (R)				
3900-3950 AERONAUTICAL MOBILE (OR) 5.123		3900-3950 AERONAUTICAL MOBILE BROADCASTING			
3950-4000 FIXED BROADCASTING		3950-4000 FIXED BROADCASTING			
	5.122 5.125	5.126	US340	US340	
4000-4063 FIXED MARITIME MOBILE 5.127 5.126			4000-4063 FIXED MARITIME MOBILE US340		Maritime (80)
4063-4438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 5.128 5.129			4063-4438 MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82 US296 US340		Maritime (80) Aviation (87)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
4438-4650 FIXED MOBILE except aeronautical mobile (R)		4438-4650 FIXED MOBILE except aeronautical mobile	4438-4650 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
4650-4700 AERONAUTICAL MOBILE (R)			4650-4700 AERONAUTICAL MOBILE (R) US282 US283 US340		Aviation (87)
4700-4750 AERONAUTICAL MOBILE (OR)			4700-4750 AERONAUTICAL MOBILE (OR) US340		
4750-4850 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE BROADCASTING 5.113	4750-4850 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113	4750-4850 FIXED BROADCASTING 5.113 Land mobile	4750-4850 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Private Land Mobile (90)
4850-4995 FIXED LAND MOBILE BROADCASTING 5.113			4850-4995 FIXED MOBILE US340	4850-4995 FIXED US340	Aviation (87) Private Land Mobile (90)
4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz)			4995-5003 STANDARD FREQUENCY AND TIME SIGNAL (5000 kHz) US340		
5003-5005 STANDARD FREQUENCY AND TIME SIGNAL Space research			5003-5005 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	5003-5005 STANDARD FREQUENCY AND TIME SIGNAL US340	
5005-5060 FIXED BROADCASTING 5.113			5005-5060 FIXED US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5060-5250 FIXED Mobile except aeronautical mobile 5.133			5060-5450 FIXED Mobile except aeronautical mobile US212 US340 US381		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur (97)
5250-5450 FIXED MOBILE except aeronautical mobile					
5450-5480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5450-5480 AERONAUTICAL MOBILE (R)	5450-5480 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5450-5680 AERONAUTICAL MOBILE (R) 5.111 5.115 US283 US340		Aviation (87)
5480-5680 AERONAUTICAL MOBILE (R) 5.111 5.115					
5680-5730 AERONAUTICAL MOBILE (OR) 5.111 5.115			5680-5730 AERONAUTICAL MOBILE (OR) 5.111 5.115 US340		

5730-5900 FIXED LAND MOBILE	5730-5900 FIXED MOBILE except aeronautical mobile (R)	5730-5900 FIXED Mobile except aeronautical mobile (R)	5730-5900 FIXED MOBILE except aeronautical mobile (R) US340		Maritime (80) Aviation (87) Private Land Mobile (90)
5900-5950 BROADCASTING 5.134 5.136			5900-5950 BROADCASTING 5.134 FIXED MOBILE except aeronautical mobile US340 US366		Radio Broadcast (HF)(73) Maritime (80)
5950-6200 BROADCASTING			5950-6200 BROADCASTING US340		Radio Broadcast (HF)(73)
6200-6525 MARITIME MOBILE 5.109 5.110 5.130 5.132 5.137			6200-6525 MARITIME MOBILE 5.109 5.110 5.130 5.132 US82 US296 US340		Maritime (80)
6525-6685 AERONAUTICAL MOBILE (R)			6525-6685 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
6685-6765 AERONAUTICAL MOBILE (OR)			6685-6765 AERONAUTICAL MOBILE (OR) US340		
6765-7000 FIXED MOBILE except aeronautical mobile (R) 5.138 5.138A 5.139			6765-7000 FIXED MOBILE except aeronautical mobile (R) 5.138 US340 US394		ISM Equipment (18) Private Land Mobile (90)
7000-7100 AMATEUR AMATEUR-SATELLITE 5.140 5.141 5.141A			7000-7100 US340	7000-7100 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
7100-7200 AMATEUR 5.141A 5.141B 5.141C 5.142			7100-7300 US340 US395	7100-7300 AMATEUR 5.142 US340 US395	Radio Broadcast (HF)(73) Amateur (97)
7200-7300 BROADCASTING	7200-7300 AMATEUR 5.142	7200-7300 BROADCASTING			
7300-7400 BROADCASTING 5.134 5.143 5.143A 5.143B 5.143C 5.143D			7300-7400 BROADCASTING 5.134 US340 US396		Radio Broadcast (HF)(73) Maritime (80) Private Land Mobile (90)
7400-7450 BROADCASTING 5.143B 5.143C	7400-7450 FIXED MOBILE except aeronautical mobile (R)	7400-7450 BROADCASTING 5.143A 5.143C	7400-8100 FIXED MOBILE except aeronautical mobile (R) US340		Radio Broadcast (HF)(73) Maritime (80) Aviation (87) Private Land Mobile (90)
7450-8100 FIXED MOBILE except aeronautical mobile (R) 5.143E 5.144					

Table of Frequency Allocations			8100-13600 kHz (HF)		Page 9
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
8100-8195 FIXED MARITIME MOBILE			8100-8195 FIXED MARITIME MOBILE US340		Maritime (80)
8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111			8195-8815 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 5.111 US296 US340		Maritime (80) Aviation (87)
8815-8965 AERONAUTICAL MOBILE (R)			8815-8965 AERONAUTICAL MOBILE (R) US340		Aviation (87)
8965-9040 AERONAUTICAL MOBILE (OR)			8965-9040 AERONAUTICAL MOBILE (OR) US340		
9040-9400 FIXED			9040-9400 FIXED US340		Maritime (80) Private Land Mobile (90)
9400-9500 BROADCASTING 5.134 5.146			9400-9500 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF)(73) Maritime (80)
9500-9900 BROADCASTING 5.147			9500-9900 BROADCASTING 5.147 US340 US367		Radio Broadcast (HF)(73)
9900-9995 FIXED			9900-9995 FIXED US340		Private Land Mobile (90)
9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111			9995-10003 STANDARD FREQUENCY AND TIME SIGNAL (10000 kHz) 5.111 US340		
10003-10005 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 5.111 US340 G106	10003-10005 STANDARD FREQUENCY AND TIME SIGNAL 5.111 US340	
10005-10100 AERONAUTICAL MOBILE (R) 5.111			10005-10100 AERONAUTICAL MOBILE (R) 5.111 US283 US340		Aviation (87)
10100-10150 FIXED Amateur			10100-10150 US247 US340	10100-10150 AMATEUR US247 US340	Amateur (97)
10150-11175 FIXED Mobile except aeronautical mobile (R)			10150-11175 FIXED Mobile except aeronautical mobile (R) US340		Private Land Mobile (90)

11175-11275 AERONAUTICAL MOBILE (OR)	11175-11275 AERONAUTICAL MOBILE (OR) US340		
11275-11400 AERONAUTICAL MOBILE (R)	11275-11400 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
11400-11600 FIXED	11400-11600 FIXED US340		Private Land Mobile (90)
11600-11650 BROADCASTING 5.134 5.146	11600-11650 BROADCASTING 5.134 FIXED US340 US366		Radio Broadcast (HF)(73)
11650-12050 BROADCASTING 5.147	11650-12050 BROADCASTING US340 US367		
12050-12100 BROADCASTING 5.134 5.146	12050-12100 BROADCASTING 5.134 FIXED US340 US366		
12100-12230 FIXED	12100-12230 FIXED US340		Private Land Mobile (90)
12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145	12230-13200 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
13200-13260 AERONAUTICAL MOBILE (OR)	13200-13260 AERONAUTICAL MOBILE (OR) US340		
13260-13360 AERONAUTICAL MOBILE (R)	13260-13360 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
13360-13410 FIXED RADIO ASTRONOMY 5.149	13360-13410 RADIO ASTRONOMY US342 G115	13360-13410 RADIO ASTRONOMY US342	
13410-13570 FIXED Mobile except aeronautical mobile (R) 5.150	13410-13570 FIXED Mobile except aeronautical mobile (R) 5.150 US340	13410-13570 FIXED 5.150 US340	ISM Equipment (18) Private Land Mobile (90)
13570-13600 BROADCASTING 5.134 5.151	13570-13600 BROADCASTING 5.134 FIXED Mobile except aeronautical mobile US340 US366	13570-13600 BROADCASTING 5.134 US340 US366	Radio Broadcast (HF)(73)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
13600-13800 BROADCASTING			13600-13800 BROADCASTING US340		Radio Broadcast (HF)(73)
13800-13870 BROADCASTING 5.134 5.151			13800-13870 BROADCASTING 5.134 FIXED Mobile except aeronautical mobile US340 US366	13800-13870 BROADCASTING 5.134 FIXED US340 US366	
13870-14000 FIXED Mobile except aeronautical mobile (R)			13870-14000 FIXED Mobile except aeronautical mobile (R) US340	13870-14000 FIXED US340	Private Land Mobile (90)
14000-14250 AMATEUR AMATEUR-SATELLITE			14000-14350 US340	14000-14250 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
14250-14350 AMATEUR 5.152				14250-14350 AMATEUR US340	
14350-14990 FIXED Mobile except aeronautical mobile (R)			14350-14990 FIXED Mobile except aeronautical mobile (R) US340	14350-14990 FIXED US340	Private Land Mobile (90)
14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111			14990-15005 STANDARD FREQUENCY AND TIME SIGNAL (15000 kHz) 5.111 US340		
15005-15010 STANDARD FREQUENCY AND TIME SIGNAL Space research			15005-15010 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	15005-15010 STANDARD FREQUENCY AND TIME SIGNAL US340	
15010-15100 AERONAUTICAL MOBILE (OR)			15010-15100 AERONAUTICAL MOBILE (OR) US340		
15100-15600 BROADCASTING			15100-15600 BROADCASTING US340		Radio Broadcast (HF)(73)
15600-15800 BROADCASTING 5.134 5.146			15600-15800 BROADCASTING 5.134 FIXED US340 US366		
15800-16360 FIXED 5.153			15800-16360 FIXED US340		Private Land Mobile (90)

16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145	16360-17410 MARITIME MOBILE 5.109 5.110 5.132 5.145 US82 US296 US340		Maritime (80)
17410-17480 FIXED	17410-17480 FIXED US340		Private Land Mobile (90)
17480-17550 BROADCASTING 5.134 5.146	17480-17550 BROADCASTING 5.134 FIXED US340 US366	17480-17550 BROADCASTING 5.134 US340 US366	Radio Broadcast (HF)(73)
17550-17900 BROADCASTING	17550-17900 BROADCASTING US340		
17900-17970 AERONAUTICAL MOBILE (R)	17900-17970 AERONAUTICAL MOBILE (R) US283 US340		Aviation (87)
17970-18030 AERONAUTICAL MOBILE (OR)	17970-18030 AERONAUTICAL MOBILE (OR) US340		
18030-18052 FIXED	18030-18068 FIXED		Maritime (80) Private Land Mobile (90)
18052-18068 FIXED Space research	US340		
18068-18168 AMATEUR AMATEUR-SATELLITE 5.154	18068-18168 US340	18068-18168 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
18168-18780 FIXED Mobile except aeronautical mobile	18168-18780 FIXED Mobile US340		Maritime (80) Private Land Mobile (90)
18780-18900 MARITIME MOBILE	18780-18900 MARITIME MOBILE US82 US296 US340		Maritime (80)
18900-19020 BROADCASTING 5.134 5.146	18900-19020 BROADCASTING 5.134 FIXED US340 US366	18900-19020 BROADCASTING 5.134 US340 US366	Radio Broadcast (HF)(73)
19020-19680 FIXED	19020-19680 FIXED US340		Private Land Mobile (90)
19680-19800 MARITIME MOBILE 5.132	19680-19800 MARITIME MOBILE 5.132 US340		Maritime (80)

Table of Frequency Allocations — 19800-26950 kHz (HF) — Page 13

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
19800-19990 FIXED			19800-19990 FIXED US340		Private Land Mobile (90)
19990-19995 STANDARD FREQUENCY AND TIME SIGNAL Space research 5.111			19990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111 US340 G106	19990-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111 US340	
19995-20010 STANDARD FREQUENCY AND TIME SIGNAL (20000 kHz) 5.111					
20010-21000 FIXED Mobile			20010-21000 FIXED Mobile US340	20010-21000 FIXED US340	Private Land Mobile (90)
21000-21450 AMATEUR AMATEUR-SATELLITE			21000-21450 US340	21000-21450 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
21450-21850 BROADCASTING			21450-21850 BROADCASTING US340		Radio Broadcast (HF)(73)
21850-21870 FIXED 5.155A 5.155			21850-21924 FIXED US340		Aviation (87) Private Land Mobile (90)
21870-21924 FIXED 5.155B					
21924-22000 AERONAUTICAL MOBILE (R)			21924-22000 AERONAUTICAL MOBILE (R) US340		Aviation (87)
22000-22855 MARITIME MOBILE 5.132 5.156			22000-22855 MARITIME MOBILE 5.132 US82 US296 US340		Maritime (80)
22855-23000 FIXED 5.156			22855-23000 FIXED US340		Private Land Mobile (90)
23000-23200 FIXED Mobile except aeronautical mobile (R) 5.156			23000-23200 FIXED Mobile except aeronautical mobile (R) US340	23000-23200 FIXED US340	
23200-23350 FIXED 5.156A AERONAUTICAL MOBILE (OR)			23200-23350 AERONAUTICAL MOBILE (OR) US340		

23350-24000 FIXED MOBILE except aeronautical mobile 5.157	23350-24890 FIXED MOBILE except aeronautical mobile US340	23350-24890 FIXED US340	Private Land Mobile (90)
24000-24890 FIXED LAND MOBILE			
24890-24990 AMATEUR AMATEUR-SATELLITE	24890-24990 US340	24890-24990 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz)	24990-25005 STANDARD FREQUENCY AND TIME SIGNAL (25000 kHz) US340		
25005-25010 STANDARD FREQUENCY AND TIME SIGNAL Space research	25005-25010 STANDARD FREQUENCY AND TIME SIGNAL US340 G106	25005-25010 STANDARD FREQUENCY AND TIME SIGNAL US340	
25010-25070 FIXED MOBILE except aeronautical mobile	25010-25070 US340	25010-25070 LAND MOBILE US340 NG112	Private Land Mobile (90)
25070-25210 MARITIME MOBILE	25070-25210 MARITIME MOBILE US82 US281 US296 US340	25070-25210 MARITIME MOBILE US82 US281 US296 US340 NG112	Maritime (80) Private Land Mobile (90)
25210-25550 FIXED MOBILE except aeronautical mobile	25210-25330 US340	25210-25330 LAND MOBILE US340	Private Land Mobile (90)
	25330-25550 FIXED MOBILE except aeronautical mobile US340	25330-25550 US340	
25550-25670 RADIO ASTRONOMY 5.149	25550-25670 RADIO ASTRONOMY US74 US342		
25670-26100 BROADCASTING	25670-26100 BROADCASTING US25 US340		Radio Broadcast (HF)(73) Remote Pickup (74D)
26100-26175 MARITIME MOBILE 5.132	26100-26175 MARITIME MOBILE 5.132 US25 US340		Remote Pickup (74D) Maritime (80)
26175-27500 FIXED MOBILE except aeronautical mobile	26175-26480 US340	26175-26480 LAND MOBILE US340	Remote Pickup (74D)
	26480-26950 FIXED MOBILE except aeronautical mobile US340	26480-26950 US340	
5.150			

Table of Frequency Allocations — 26.95-42 MHz (HF/VHF) — Page 15

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)			26.95-27.41 5.150 US340	26.95-26.96 FIXED 5.150 US340	ISM Equipment (18)
				26.96-27.23 MOBILE except aeronautical mobile 5.150 US340	ISM Equipment (18) Personal Radio (95)
				27.23-27.41 FIXED MOBILE except aeronautical mobile 5.150 US340	ISM Equipment (18) Private Land Mobile (90) Personal Radio (95)
27.5-28 METEOROLOGICAL AIDS FIXED MOBILE			27.41-27.54 US340	27.41-27.54 FIXED LAND MOBILE US340	Private Land Mobile (90)
			27.54-28 FIXED MOBILE US298 US340	27.54-28 US298 US340	
28-29.7 AMATEUR AMATEUR-SATELLITE			28-29.89 US340	28-29.7 AMATEUR AMATEUR-SATELLITE US340	Amateur (97)
29.7-30.005 FIXED MOBILE				29.7-29.8 LAND MOBILE US340	Private Land Mobile (90)
				29.8-29.89 FIXED US340	
			29.89-29.91 FIXED MOBILE US340	29.89-29.91 US340	
			29.91-30 US340	29.91-30 FIXED US340	
30.005-30.01 SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH			30-30.56 FIXED MOBILE	30-30.56	
30.01-37.5 FIXED MOBILE					

	30.56-32	30.56-32 FIXED LAND MOBILE NG124	Private Land Mobile (90)
	32-33 FIXED MOBILE	32-33	
	33-34	33-34 FIXED LAND MOBILE NG124	Private Land Mobile (90)
	34-35 FIXED MOBILE	34-35	
	35-36	35-36 FIXED LAND MOBILE	Public Mobile (22) Private Land Mobile (90)
	36-37 FIXED MOBILE US220	36-37 US220	
	37-37.5	37-37.5 LAND MOBILE NG124	Private Land Mobile (90)
37.5-38.25 FIXED MOBILE Radio astronomy	37.5-38 Radio astronomy US342	37.5-38 LAND MOBILE Radio astronomy US342 NG59 NG124	
5.149	38-38.25 FIXED MOBILE RADIO ASTRONOMY US81 US342	38-38.25 RADIO ASTRONOMY US81 US342	
38.25-39.986 FIXED MOBILE	38.25-39 FIXED MOBILE	38.25-39	
	39-40	39-40 LAND MOBILE NG124	Private Land Mobile (90)
39.986-40.02 FIXED MOBILE Space research	40-42 FIXED MOBILE	40-42	ISM Equipment (18) Private Land Mobile (90)
40.02-40.98 FIXED MOBILE 5.150	5.150 US210 US220	5.150 US210 US220	

Table of Frequency Allocations — 42-137 MHz (VHF) — Page 17

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
40.98-41.015 FIXED MOBILE Space research 5.160 5.161			(See previous page)		
41.015-44 FIXED MOBILE 5.160 5.161			42-46.6	42-43.69 FIXED LAND MOBILE NG124 NG141	Public Mobile (22) Private Land Mobile (90)
				43.69-46.6 LAND MOBILE NG124 NG141	Private Land Mobile (90)
44-47 FIXED MOBILE 5.162 5.162A			46.6-47 FIXED MOBILE	46.6-47	
47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING 5.162A	47-49.6	47-49.6 LAND MOBILE NG124	Private Land Mobile (90)
			49.6-50 FIXED MOBILE	49.6-50	
	50-54 AMATEUR 5.162A 5.166 5.167 5.168 5.170		50-73	50-54 AMATEUR	Amateur (97)
5.162A 5.163 5.164 5.165 5.169 5.171	54-68 BROADCASTING Fixed Mobile 5.172	54-68 FIXED MOBILE BROADCASTING 5.162A		54-72 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) Auxiliary Broadcasting (74)
68-74.8 FIXED MOBILE except aeronautical mobile	68-72 BROADCASTING Fixed Mobile 5.173	68-74.8 FIXED MOBILE			
	72-73 FIXED MOBILE			72-73 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Aviation (87) Private Land Mobile (90) Personal Radio (95)
	73-74.6 RADIO ASTRONOMY 5.178		73-74.6 RADIO ASTRONOMY US74 US246		
	74.6-74.8 FIXED MOBILE		74.6-74.8 FIXED MOBILE US273		Aviation (87) Private Land Mobile (90)
5.149 5.174 5.175 5.177 5.179		5.149 5.176 5.179			

74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION 5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile 5.175 5.179 5.184 5.187	75.2-75.4 FIXED MOBILE 5.179		75.2-75.4 FIXED MOBILE US273		Private Land Mobile (90)
	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE 5.182 5.183 5.188	75.4-88	75.4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
	76-88 BROADCASTING Fixed Mobile 5.185	87-100 FIXED MOBILE BROADCASTING		76-88 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) Auxiliary Broadcasting (74)
87.5-100 BROADCASTING 5.190	88-100 BROADCASTING		88-108 US93	88-108 BROADCASTING NG2 US93 NG128	Broadcast Radio (FM)(73) Auxiliary Broadcasting (74)
100-108 BROADCASTING 5.192 5.194					
108-117.975 AERONAUTICAL RADIONAVIGATION 5.197 5.197A			108-117.975 AERONAUTICAL RADIONAVIGATION US93 US343		Aviation (87)
117.975-137 AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 5.201 5.202 5.203 5.203A 5.203B			117.975-121.9375 AERONAUTICAL MOBILE (R) 5.111 5.198 5.199 5.200 US26 US28		
			121.9375-123.0875 5.198 US30 US31 US33 US80 US102 US213	121.9375-123.0875 AERONAUTICAL MOBILE 5.198 US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE 5.198 5.200 US32 US33 US112		
			123.5875-128.8125 AERONAUTICAL MOBILE (R) 5.198 US26		
			128.8125-132.0125 5.198	128.8125-132.0125 AERONAUTICAL MOBILE (R) 5.198	
			132.0125-136 AERONAUTICAL MOBILE (R) 5.198 US26		
			136-137 US244	136-137 AERONAUTICAL MOBILE (R) US244	

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137-137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth) 5.208		Satellite Communications (25)
137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.025-137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.175-137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 SPACE RESEARCH (space-to-Earth) 5.208		
137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) 5.208A 5.209 Mobile except aeronautical mobile (R) 5.204 5.205 5.206 5.207 5.208			137.825-138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-satellite (space-to-Earth) US319 US320 5.208		
138-143.6 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	138-143.6 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	138-143.6 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	138-144 FIXED MOBILE	138-144	
143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth) 5.211 5.212 5.214	143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)	143.6-143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.207 5.213			
143.65-144 AERONAUTICAL MOBILE (OR) 5.210 5.211 5.212 5.214	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	143.65-144 FIXED MOBILE Space research (space-to-Earth) 5.207 5.213	G30		

144-146 AMATEUR AMATEUR-SATELLITE 5.216			144-148	144-146 AMATEUR AMATEUR-SATELLITE	Amateur (97)
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR 5.217	146-148 AMATEUR FIXED MOBILE 5.217		146-148 AMATEUR	
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221		148-149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325 5.218 5.219 G30	148-149.9 MOBILE-SATELLITE (Earth-to-space) US319 US320 US323 US325 5.218 5.219	Satellite Communications (25)
149.9-150.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.224B 5.220 5.222 5.223			149.9-150.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.223		
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	150.05-156.7625 FIXED MOBILE		150.05-150.8 FIXED MOBILE US216 G30	150.05-150.8 US216	
			150.8-152.855 US216	150.8-152.855 FIXED LAND MOBILE NG4 NG51 NG112 US216 NG124	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids			152.855-156.2475	152.855-154 LAND MOBILE NG4 NG124	Auxiliary Broadcasting (74) Private Land Mobile (90)
154-156.7625 FIXED MOBILE except aeronautical mobile (R) 5.226 5.227	5.225 5.226 5.227			154-156.2475 FIXED LAND MOBILE NG112 5.226 NG117 NG124 NG148	Maritime (80) Private Land Mobile (90) Personal Radio (95)
156.7625-156.8375 MARITIME MOBILE (distress and calling) 5.111 5.226			156.2475-157.0375 5.226 5.227 US77 US106 US107 US266	156.2475-157.0375 MARITIME MOBILE US77 US106 US107 NG117 5.226 5.227 US266	Maritime (80) Aviation (87)

Table of Frequency Allocations			157.0375-267 MHz (VHF)		Page 21
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
156.8375-174 FIXED MOBILE except aeronautical mobile	156.8375-174 FIXED MOBILE		(See previous page)		
			157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109	157.0375-157.1875 5.226 US214 US266	Maritime (80) Private Land Mobile (90)
			157.1875-161.575	157.1875-157.45 LAND MOBILE US266 MARITIME MOBILE 5.226 NG111	
				157.45-161.575 FIXED LAND MOBILE NG28 NG111 5.226 NG6 NG70 NG112 NG124 NG148 NG155	Public Mobile (22) Auxiliary Broadcasting (74) Maritime (80) Private Land Mobile (90)
			161.575-161.625 5.226 US77	161.575-161.625 MARITIME MOBILE US77 5.226 NG6 NG17	Public Mobile (22) Maritime (80)
			161.625-161.775	161.625-161.775 LAND MOBILE NG6 5.226	Public Mobile (22) Auxiliary Broadcasting (74)
			161.775-162.0125 5.226 US266	161.775-162.0125 LAND MOBILE US266 NG6 MARITIME MOBILE 5.226	Public Mobile (22) Maritime (80) Private Land Mobile (90)
			162.0125-173.2 FIXED US13 MOBILE 5.226 US8 US11 US216 US300 US312 G5	162.0125-173.2 5.226 US8 US11 US13 US216 US300 US312	Auxiliary Broadcasting (74) Maritime (80) Private Land Mobile (90)
			173.2-173.4	173.2-173.4 FIXED Land mobile	Private Land Mobile (90)
			173.4-174 FIXED MOBILE G5	173.4-174	
5.226 5.229	5.226 5.230 5.231 5.232				

174-223 BROADCASTING	174-216 BROADCASTING Fixed Mobile 5.234	174-223 FIXED MOBILE BROADCASTING	174-216	174-216 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) Auxiliary Broadcasting (74)
	216-220 FIXED MARITIME MOBILE Radiolocation 5.241 5.242		216-217 Fixed Land mobile Radiolocation 5.241 G2 US210 US229	216-219 FIXED MOBILE except aeronautical mobile US210 US229 NG173	Maritime (80) Private Land Mobile (90) Personal Radio (95)
			217-220 Fixed Mobile US210 US229	219-220 FIXED MOBILE except aeronautical mobile Amateur NG152 US210 US229 NG173	Maritime (80) Private Land Mobile (90) Amateur (97)
	220-225 AMATEUR FIXED MOBILE Radiolocation 5.241		220-222 FIXED LAND MOBILE Radiolocation 5.241 G2 US335	220-222 FIXED LAND MOBILE US335	Private Land Mobile (90)
5.235 5.237 5.243		5.233 5.238 5.240 5.245	222-225 Radiolocation 5.241 G2	222-225 AMATEUR	Amateur (97)
223-230 BROADCASTING Fixed Mobile 5.243 5.246 5.247	225-235 FIXED MOBILE	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation 5.250	225-235 FIXED MOBILE G27	225-235	
230-235 FIXED MOBILE 5.247 5.251 5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION 5.250			
235-267 FIXED MOBILE 5.111 5.199 5.252 5.254 5.256 5.256A			235-267 FIXED MOBILE 5.111 5.199 5.256 G27 G100	235-267 5.111 5.199 5.256	

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
267-272 FIXED MOBILE Space operation (space-to-Earth) 5.254 5.257			267-322 FIXED MOBILE	267-322	
272-273 SPACE OPERATION (space-to-Earth) FIXED MOBILE 5.254					
273-312 FIXED MOBILE 5.254					
312-315 FIXED MOBILE Mobile-satellite (Earth-to-space) 5.254 5.255					
315-322 FIXED MOBILE 5.254			G27 G100		
322-328.6 FIXED MOBILE RADIO ASTRONOMY 5.149			322-328.6 FIXED MOBILE US342 G27	322-328.6 US342	
328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258 5.259			328.6-335.4 AERONAUTICAL RADIONAVIGATION 5.258		
335.4-387 FIXED MOBILE 5.254			335.4-399.9 FIXED MOBILE	335.4-399.9	
387-390 FIXED MOBILE Mobile-satellite (space-to-Earth) 5.208A 5.254 5.255					
390-399.9 FIXED MOBILE 5.254			G27 G100		

399.9-400.05 MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260 5.220	399.9-400.05 MOBILE-SATELLITE (Earth-to-space) US319 US320 RADIONAVIGATION-SATELLITE 5.260		Satellite Communications (25)
400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261 5.262	400.05-400.15 STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz) 5.261		
400.15-401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A 5.209 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.262 5.264	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70 MOBILE-SATELLITE (space-to-Earth) US319 US320 US324 SPACE RESEARCH (space-to-Earth) 5.263 Space operation (space-to-Earth) 5.264	Satellite Communications (25)
401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US384	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US384	
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 METEOROLOGICAL AIDS (radiosonde) US70 EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US345 US384	402-403 METEOROLOGICAL AIDS (radiosonde) US70 Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US345 US384	Personal Radio (95)
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345 G6	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US345	
406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267	406-406.1 MOBILE-SATELLITE (Earth-to-space) 5.266 5.267		
406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	406.1-410 FIXED US13 MOBILE RADIO ASTRONOMY US74 US117 G5 G6	406.1-410 RADIO ASTRONOMY US74 US13 US117	Private Land Mobile (90)

Table of Frequency Allocations — 410-614 MHz (UHF) — Page 25

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268			410-420 FIXED US13 MOBILE SPACE RESEARCH (space-to-space) 5.268 G5	410-420 US13	Private Land Mobile (90)
420-430 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271			420-450 RADIOLOCATION US217 G2 G129 5.286 US7 US87 US230 US397 G8	420-450 Amateur US7 NG135 5.282 5.286 US87 US217 US230 US397	Private Land Mobile (90) Amateur (97)
430-432 AMATEUR RADIOLOCATION 5.271 5.272 5.273 5.274 5.275 5.276 5.277	430-432 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A 5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A 5.271 5.276 5.277 5.278 5.279 5.281 5.282				
438-440 AMATEUR RADIOLOCATION 5.271 5.273 5.274 5.275 5.276 5.277 5.283	438-440 RADIOLOCATION Amateur 5.271 5.276 5.277 5.278 5.279				
440-450 FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271 5.284 5.285 5.286					
450-455 FIXED MOBILE 5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286D 5.286E			450-454 5.286 US87	450-454 LAND MOBILE 5.286 US87 NG112 NG124	Auxiliary Broadcasting (74) Private Land Mobile (90)
			454-456	454-455 FIXED LAND MOBILE NG12 NG112 NG148	Public Mobile (22) Maritime (80)
455-456 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E	455-456 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	455-456 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E		455-456 LAND MOBILE	Auxiliary Broadcasting (74)

456-459 FIXED MOBILE 5.271 5.287 5.288			456-460	456-460 FIXED LAND MOBILE 5.287 5.288 NG112 NG124 NG148	Public Mobile (22) Maritime (80) Private Land Mobile (90)
459-460 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E	459-460 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.286A 5.286B 5.286C 5.209	459-460 FIXED MOBILE 5.209 5.271 5.286A 5.286B 5.286C 5.286E			
460-470 FIXED MOBILE Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 5.290			460-470 Meteorological-satellite (space-to-Earth) 5.287 5.288 5.289 US201 US209 US216	460-462.5375 FIXED LAND MOBILE 5.289 US201 US209 NG124	Private Land Mobile (90)
				462.5375-462.7375 LAND MOBILE 5.289 US201	Personal Radio (95)
				462.7375-467.5375 FIXED LAND MOBILE 5.287 5.289 US201 US209 US216 NG124	Private Land Mobile (90)
				467.5375-467.7375 LAND MOBILE 5.287 5.289 US201	Personal Radio (95)
				467.7375-470 FIXED LAND MOBILE 5.288 5.289 US201 US216 NG124	Private Land Mobile (90)
470-790 BROADCASTING 5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311 5.312	470-512 BROADCASTING Fixed Mobile 5.292 5.293	470-585 FIXED MOBILE BROADCASTING 5.291 5.298	470-608	470-512 FIXED LAND MOBILE BROADCASTING NG66 NG115 NG128 NG142 NG149	Public Mobile (22) Broadcast Radio (TV)(73) Auxiliary Broadcasting (74) Private Land Mobile (90)
	512-608 BROADCASTING 5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307		512-608 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) Auxiliary Broadcasting (74)
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	610-890 FIXED MOBILE 5.317A BROADCASTING 5.149 5.305 5.306 5.3075.311 5.320	608-614 RADIO ASTRONOMY US74 LAND MOBILE (medical telemetry and medical telecommand) US246		Personal (95)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)	614-806 BROADCASTING Fixed Mobile	(See previous page)	614-869	614-698 BROADCASTING NG115 NG128 NG142 NG149	Broadcast Radio (TV)(73) Auxiliary Broadcasting (74)
				698-764 FIXED MOBILE BROADCASTING NG115 NG128 NG142 NG159	Wireless Communication (27) Broadcast Radio (TV)(73) Auxiliary Broadcasting (74) Private Land Mobile (90)
				764-776 FIXED MOBILE NG115 NG128 NG142 NG158 NG159	Auxiliary Broadcasting (74) Private Land Mobile (90)
790-862 FIXED BROADCASTING				776-794 FIXED MOBILE BROADCASTING NG115 NG128 NG142 NG159	Wireless Communications (27) Broadcast Radio (TV)(73) Auxiliary Broadcasting (74) Private Land Mobile (90)
	5.293 5.309 5.311			794-806 FIXED MOBILE NG115 NG128 NG142 NG158 NG159	Auxiliary Broadcasting (74) Private Land Mobile (90)
	806-890 FIXED MOBILE BROADCASTING			806-809 LAND MOBILE	Private Land Mobile (90)
				809-821 FIXED LAND MOBILE NG31	Public Mobile (22) Private Land Mobile (90)
				821-824 LAND MOBILE	Private Land Mobile (90)
				824-849 FIXED LAND MOBILE	Public Mobile (22)
				849-851 AERONAUTICAL MOBILE	
5.312 5.314 5.315 5.316 5.319 5.321				851-854 LAND MOBILE	Private Land Mobile (90)
862-890 FIXED MOBILE except aeronautical mobile BROADCASTING 5.322				854-869 FIXED LAND MOBILE NG31	Public Mobile (22) Private Land Mobile (90)
5.319 5.323	5.317 5.318		869-894 US116 US268 G2	869-894 FIXED LAND MOBILE US116 US268	Public Mobile (22)

890-942 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation	890-902 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation 5.318 5.325	890-942 FIXED MOBILE 5.317A BROADCASTING Radiolocation
	902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation 5.150 5.325 5.326	
	928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation	
5.323	5.325	5.327

894-902 US116 US268 G2	894-896 AERONAUTICAL MOBILE US116 US268	Public Mobile (22)
	896-901 FIXED LAND MOBILE US116 US268	Private Land Mobile (90)
	901-902 FIXED MOBILE US116 US268	Personal Communications (24)
902-928 RADIOLOCATION G59 5.150 US215 US218 US267 US275 G11	902-928 5.150 US215 US218 US267 US275	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
928-932 US116 US215 US268 G2	928-929 FIXED US116 US215 US268 NG120	Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101)
	929-930 FIXED LAND MOBILE US116 US215 US268	Private Land Mobile (90)
	930-931 FIXED MOBILE US116 US215 US268	Personal Communications (24)
	931-932 FIXED LAND MOBILE US116 US215 US268	Public Mobile (22)
932-935 FIXED US215 US268 G2	932-935 FIXED US215 US268 NG120	Public Mobile (22) Fixed Microwave (101)
935-940 US116 US215 US268 G2	935-940 FIXED LAND MOBILE US116 US215 US268	Private Land Mobile (90)
940-941 US116 US268 G2	940-941 FIXED MOBILE US116 US268	Personal Communications (24)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)			941-944 FIXED US268 US301 US302 G2	941-944 FIXED US268 US301 US302 NG120	Public Mobile (22) Fixed Microwave (101)
942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	942-960 FIXED MOBILE 5.317A	942-960 FIXED MOBILE 5.317A BROADCASTING 5.320	944-960	944-960 FIXED NG120	Public Mobile (22) Auxiliary Broadcasting (74) Fixed Microwave (101)
960-1164 AERONAUTICAL RADIONAVIGATION 5.328			960-1164 AERONAUTICAL RADIONAVIGATION 5.328 US224		Aviation (87)
1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A			1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328A US224		
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332			1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) G132 SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A			1240-1300 AERONAUTICAL RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active) 5.332 5.335	1240-1300 AERONAUTICAL RADIONAVIGATION Earth exploration-satellite (active) Space research (active) Amateur 5.282	Amateur (97)
1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A			1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2 US342	1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 US342	Aviation (87)
1350-1400 FIXED MOBILE RADIOLOCATION	1350-1400 RADIOLOCATION		1350-1390 FIXED MOBILE RADIOLOCATION G2 5.334 5.339 US311 US342 G27 G114	1350-1390 5.334 5.339 US311 US342	

		1390-1395 5.339 US311 US342 US351 US398	1390-1392 FIXED MOBILE except aeronautical mobile Fixed-satellite (Earth-to-space) US368 5.339 US311 US342 US351 US398 1392-1395 FIXED MOBILE except aeronautical mobile 5.339 US311 US342 US351 US398	Wireless Communications (27)
5.149 5.338 5.339 5.339A	5.149 5.334 5.339 5.339A	1395-1400 LAND MOBILE (medical telemetry and medical telecommand) 5.339 US311 US342 US351 US398		Personal (95)
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.341		1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.341 US246		
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile 5.341		1427-1429.5 LAND MOBILE US350 5.341 US352 US398	1427-1429.5 LAND MOBILE Fixed (telemetry) 5.341 US350 US352 US398	Private Land Mobile (90) Personal (95)
1429-1452 FIXED MOBILE except aeronautical mobile 5.339A 5.341 5.342	1429-1452 FIXED MOBILE 5.343 5.339A 5.341	1429.5-1432 5.341 US350 US352 US398	1429.5-1430 FIXED (telemetry) LAND MOBILE (telemetry) 5.341 US350 US352 US398 1430-1432 FIXED (telemetry) LAND MOBILE (telemetry) Fixed-satellite (space-to-Earth) US368 5.341 US350 US352 US398	
		1432-1435 5.341 US361	1432-1435 FIXED MOBILE except aeronautical mobile 5.341 US361	Wireless Communications (27)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
(See previous page)			1435-1525 MOBILE (aeronautical telemetry) 5.341 US78		Aviation (87)
1452-1492 FIXED MOBILE except aeronautical mobile BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.347A 5.341 5.342	1452-1492 FIXED MOBILE 5.343 BROADCASTING 5.345 5.347 BROADCASTING-SATELLITE 5.345 5.347 5.347A 5.341 5.344				
1492-1518 FIXED MOBILE except aeronautical mobile 5.341 5.342	1492-1518 FIXED MOBILE 5.343 5.341 5.344	1492-1518 FIXED MOBILE 5.341			
1518-1525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C 5.341 5.342	1518-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C 5.341 5.344	1518-1525 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.348C 5.341			
1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A Earth exploration-satellite Mobile except aeronautical mobile 5.349 5.341 5.342 5.350 5.351 5.352A 5.354	1525-1530 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354	1525-1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A Earth exploration-satellite Mobile 5.349 5.341 5.351 5.352A 5.354	1525-1535 MOBILE-SATELLITE (space-to-Earth) US315 US380 5.341 5.351		Satellite Communications (25) Maritime (80)
1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A 5.353A Earth exploration-satellite Fixed Mobile except aeronautical mobile 5.341 5.342 5.351 5.354	1530-1535 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A 5.353A Earth exploration-satellite Fixed Mobile 5.343 5.341 5.351 5.354				
1535-1559 MOBILE-SATELLITE (space-to-Earth) 5.347A 5.351A 5.341 5.351 5.353A 5.354 5.355 5.356 5.357 5.357A 5.359 5.362A			1535-1559 MOBILE-SATELLITE (space-to-Earth) US308 US309 US315 US380 5.341 5.351 5.356		Satellite Communications (25) Maritime (80) Aviation (87)
1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329A 5.341 5.362B 5.362C 5.363			1559-1610 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.341 US208 US260		Aviation (87)

1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610-1610.6 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE(Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208	Satellite Communications (25) Aviation (87)
1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION 5.149 5.341 5.355 5.359 5.363 5.364 5.366 5.367 5.368 5.369 5.371 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) 5.149 5.341 5.364 5.366 5.367 5.368 5.370 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION Radiodetermination-satellite (Earth-to-space) 5.149 5.341 5.355 5.359 5.364 5.366 5.367 5.368 5.369 5.372	1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) US319 US380 RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) 5.341 5.364 5.366 5.367 5.368 5.372 US208 US342	
1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.347A 5.341 5.355 5.359 5.363 5.364 5.365 5.366 5.367 5.368 5.369 5.371 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.347A 5.341 5.364 5.365 5.366 5.367 5.368 5.370 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) 5.351A AERONAUTICAL RADIONAVIGATION Mobile-satellite (space-to-Earth) 5.347A Radiodetermination-satellite (Earth-to-space) 5.341 5.355 5.359 5.364 5.365 5.366 5.367 5.368 5.369 5.372	1613.8-1626.5 MOBILE-SATELLITE (Earth-to-space) US319 US380 AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space) Mobile-satellite (space-to-Earth) 5.341 5.364 5.365 5.366 5.367 5.368 5.372 US208	
1626.5-1660 MOBILE-SATELLITE (Earth-to-space) 5.351A 5.341 5.351 5.353A 5.354 5.355 5.357A 5.359 5.362A 5.374 5.375 5.376			1626.5-1660 MOBILE-SATELLITE (Earth-to-space) US308 US309 US315 US380 5.341 5.351 5.375	Satellite Communications (25) Maritime (80) Aviation (87)
1660-1660.5 MOBILE-SATELLITE (Earth-to-space) 5.351A RADIO ASTRONOMY 5.149 5.341 5.351 5.354 5.362A 5.376A			1660-1660.5 MOBILE-SATELLITE (Earth-to-space) US308 US309 US380 RADIO ASTRONOMY 5.341 5.351 US342	Satellite Communications (25) Aviation (87)
1660.5-1668 RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A			1660.5-1668.4 RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.341 US246	
1668-1668.4 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.379C RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.341 5.379 5.379A 5.379D				

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1670-1675 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE 5.380 MOBILE-SATELLITE (Earth-to-space) 5.348C 5.379B 5.341 5.379D 5.379E 5.380A			1670-1675 5.341 US211 US362	1670-1675 FIXED MOBILE except aeronautical mobile 5.341 US211 US362	Wireless Communications (27)
1675-1690 METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341			1675-1700 METEOROLOGICAL AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 US211		
1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed Mobile except aeronautical mobile 5.289 5.341 5.382	1690-1700 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341 5.381				
1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341		1700-1710 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.289 5.341 5.384	1700-1710 FIXED G118 METEOROLOGICAL-SATELLITE (space-to-Earth) 5.289 5.341	1700-1710 METEOROLOGICAL-SATELLITE (space-to-Earth) Fixed 5.289 5.341	
1710-1930 FIXED MOBILE 5.380 5.384A 5.388A 5.388B 5.149 5.341 5.385 5.386 5.387 5.388			1710-1755 5.341 US311 US378	1710-1755 FIXED MOBILE 5.341 US311 US378	Wireless Communications (27)
			1755-1850 FIXED MOBILE SPACE OPERATION (Earth-to-space) G42	1755-1850	

1930-1970 FIXED MOBILE 5.388A 5.388B 5.388	1930-1970 FIXED MOBILE 5.388A 5.388B Mobile-satellite (Earth-to-space) 5.388	1930-1970 FIXED MOBILE 5.388A 5.388B 5.388	1850-2025	1850-2000 FIXED MOBILE NG177	RF Devices (15) Personal Communications (24) Fixed Microwave (101)
1970-1980 FIXED MOBILE 5.388A 5.388B 5.388					
1980-2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.351A 5.388 5.389A 5.389B 5.389F				2000-2020 MOBILE-SATELLITE (Earth-to-space) US380 NG156	Satellite Communications (25)
2010-2025 FIXED MOBILE 5.388A 5.388B 5.388	2010-2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.388 5.389C 5.389E 5.390	2010-2025 FIXED MOBILE 5.388A 5.388B 5.388		2020-2025 FIXED MOBILE NG177	
2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) 5.392			2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) 5.391 5.392 US90 US222 US346 U347 US393	2025-2110 FIXED NG118 MOBILE 5.391 5.392 US90 US222 US346 US347 US393	TV Auxiliary Broadcasting (74F) Cable TV Relay (78) Local TV Transmission (101J)
2110-2120 FIXED MOBILE 5.388A 5.388B SPACE RESEARCH (deep space) (Earth-to-space) 5.388			2110-2120 US252	2110-2155 FIXED MOBILE US252	Public Mobile (22) Wireless Communications (27) Fixed Microwave (101)
2120-2160 FIXED MOBILE 5.388A 5.388B 5.388	2120-2160 FIXED MOBILE 5.388A 5.388B Mobile-satellite (space-to-Earth) 5.388	2120-2170 FIXED MOBILE 5.388A 5.388B	2120-2200	2155-2160 FIXED	Wireless Communications (27) Fixed Microwave (101)
2160-2170 FIXED MOBILE 5.388A 5.388B 5.388 5.392A	2160-2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.388 5.389C 5.389E 5.390	5.388		2160-2180 FIXED NG153 MOBILE NG178	Public Mobile (22) Wireless Communications (27) Fixed Microwave (101)
2170-2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A 5.388 5.389A 5.389F 5.392A				2180-2200 MOBILE-SATELLITE (space-to-Earth) US380 NG168	Satellite Communications (25)

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2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			2290-2300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	2290-2300 SPACE RESEARCH (deep space) (space-to-Earth)	
2300-2450 FIXED MOBILE Amateur Radiolocation	2300-2450 FIXED MOBILE RADIOLOCATION Amateur		2300-2305 G123	2300-2305 Amateur	Amateur (97)
			2305-2310 US338 G123	2305-2310 FIXED MOBILE except aeronautical mobile RADIOLOCATION Amateur US338	Wireless Communications (27) Amateur (97)
			2310-2320 Fixed Mobile US339 Radiolocation G2 G120 US327	2310-2320 FIXED MOBILE US339 RADIOLOCATION BROADCASTING-SATELLITE 5.396 US327	Wireless Communications (27) Aviation (87)
			2320-2345 Fixed Radiolocation G2 G120 US327	2320-2345 BROADCASTING-SATELLITE 5.396 US327	Satellite Communications (25)
			2345-2360 Fixed Mobile US339 Radiolocation G2 G120 US327	2345-2360 FIXED MOBILE US339 RADIOLOCATION BROADCASTING-SATELLITE 5.396 US327	Wireless Communications (27) Aviation (87)
			2360-2390 MOBILE US276 RADIOLOCATION G2 G120 Fixed	2360-2390 MOBILE US276	Aviation (87)
			2390-2395 MOBILE US276	2390-2395 MOBILE US276 AMATEUR	Aviation (87) Amateur (97)

			2395-2400 G122	2395-2400 AMATEUR	Amateur (97)
			2400-2402 5.150 G123	2400-2417 AMATEUR	ISM Equipment (18) Amateur (97)
			2402-2417 5.150 G122	5.150 5.282	
			2417-2450 Radiolocation G2	2417-2450 Amateur	
5.150 5.282 5.395	5.150 5.282 5.393 5.394 5.396		5.150 G124	5.150 5.282	
2450-2483.5 FIXED MOBILE Radiolocation 5.150 5.397	2450-2483.5 FIXED MOBILE RADIOLOCATION 5.150 5.394		2450-2483.5 5.150 US41	2450-2483.5 FIXED MOBILE Radiolocation 5.150 US41	ISM Equipment (18) TV Auxiliary Broadcasting (74F) Private Land Mobile (90) Fixed Microwave (101)
2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A Radiolocation 5.150 5.371 5.397 5.398 5.399 5.400 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION Radiodetermination-satellite (space-to-Earth) 5.398 5.150 5.400 5.402	2483.5-2500 MOBILE-SATELLITE (space-to-Earth) US319 US380 US391 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41	2483.5-2495 MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41 NG147	ISM Equipment (18) Satellite Communications (25)
				2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) US319 US380 RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.402 US41 US391 NG147	ISM Equipment (18) Satellite Communications (25) Wireless Communications (27)
2500-2520 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to Earth) 5.351A 5.403 5.405 5.407 5.412 5.414	2500-2520 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.403 5.404 5.407 5.414 5.415A		2500-2655 5.339 US205	2500-2655 FIXED US205 MOBILE except aeronautical mobile 5.339	Wireless Communications (27)
2520-2655 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.403 5.405 5.412 5.417C 5.417D 5.418B 5.418C	2520-2655 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.403 5.417C 5.417D 5.418B 5.418C	2520-2535 FIXED 5.409 5.411 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.415A			
		2535-2655 FIXED 5.409 5.411 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C			

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2670-2690 FIXED 5.409 5.410 5.411 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.412 5.419 5.420	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.347A 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.419 5.420	2670-2690 FIXED 5.409 5.411 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A Earth exploration-satellite (passive) Radio astronomy Space research (passive) 5.149 5.419 5.420 5.420A	US205	US269	
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424			2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 METEOROLOGICAL AIDS Radiolocation G2 5.423 US18 G15	2700-2900 5.423 US18	
2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426 5.425 5.427			2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION 5.427 US44 US316	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44 5.427 US316	Maritime (80) Private Land Mobile (90)
3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active) 5.149 5.428			3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active) US342	3100-3300 Radiolocation Earth exploration-satellite (active) Space research (active) US342	Private Land Mobile (90)

3300-3400 RADIOLOCATION 5.149 5.429 5.430	3300-3400 RADIOLOCATION Amateur Fixed Mobile 5.149 5.430	3300-3400 RADIOLOCATION Amateur 5.149 5.429	3300-3500 RADIOLOCATION US108 G31 US342	3300-3500 Amateur Radiolocation US108 5.282 US342	Private Land Mobile (90) Amateur (97)
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation 5.431	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433 5.282 5.432				
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3500-3700 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435		3500-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110 US245	3500-3600 Radiolocation 3600-3650 FIXED-SATELLITE (space-to-Earth) US245 Radiolocation	Private Land Mobile (90)
			3650-3700 US348 US349	3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 NG185 MOBILE except aeronautical mobile US348 US349	Satellite Communications (25) Private Land Mobile (90)
	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4200 FIXED NG41 FIXED-SATELLITE (space-to-Earth) NG180	International Fixed (23) Satellite Communications (25) Fixed Microwave (101)
4200-4400 AERONAUTICAL RADIONAVIGATION 5.438 5.439 5.440			4200-4400 AERONAUTICAL RADIONAVIGATION 5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE			4400-4500 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE			4500-4800 FIXED MOBILE US245	4500-4800 FIXED-SATELLITE (space-to-Earth) 5.441 US245	
4800-4990 FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443			4800-4940 FIXED MOBILE US203 US342	4800-4940 US203 US342	
			4940-4990 5.339 US311 US342 G122	4940-4990 FIXED MOBILE except aeronautical mobile 5.339 US311 US342	Private Land Mobile (90)

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5000-5010 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			5000-5010 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 US211 US344		Satellite Communications (25) Aviation (87)
5010-5030 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367			5010-5030 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B 5.367 US211 US344		
5030-5150 AERONAUTICAL RADIONAVIGATION 5.367 5.444 5.444A			5030-5250 AERONAUTICAL RADIONAVIGATION US260 5.367 5.444 US211 US307 US344	5030-5150 AERONAUTICAL RADIONAVIGATION US260 5.367 5.444 5.444A US211 US344	
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18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A 5.522C	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.522B MOBILE except aeronautical mobile SPACE RESEARCH (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED FIXED-SATELLITE (space-to-Earth) 5.522B MOBILE except aeronautical mobile Space research (passive) 5.522A	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 G117 SPACE RESEARCH (passive) US254 US334	18.6-18.8 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) US255 NG164 SPACE RESEARCH (passive) US254 US334 NG144	
18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE			18.8-20.2 FIXED-SATELLITE (space-to-Earth) G117	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US334 NG144	
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE				19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334 NG144	Satellite Communications (25) Auxiliary Broadcast (74) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B Mobile-satellite (space-to-Earth) 5.524		19.7-20.1 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			US334	20.1-20.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 US334	

20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) 5.524			20.2-21.2 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Standard frequency and time signal-satellite (space-to-Earth) G117	20.2-21.2 Standard frequency and time signal-satellite (space-to-Earth)	
21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)			21.2-21.4 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263		Fixed Microwave (101)
21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.347A 5.530	21.4-22 FIXED MOBILE	21.4-22 FIXED MOBILE BROADCASTING-SATELLITE 5.347A 5.530 5.531	21.4-22 FIXED MOBILE		
22-22.21 FIXED MOBILE except aeronautical mobile 5.149			22-22.21 FIXED MOBILE except aeronautical mobile US342		
22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) 5.149 5.532			22.21-22.5 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) US342 US263		
22.5-22.55 FIXED MOBILE			22.5-22.55 FIXED MOBILE US211		
22.55-23.55 FIXED INTER-SATELLITE MOBILE 5.149			22.55-23.55 FIXED INTER-SATELLITE US278 MOBILE US342		Satellite Communications (25) Fixed Microwave (101)
23.55-23.6 FIXED MOBILE			23.55-23.6 FIXED MOBILE		Fixed Microwave (101)

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24-24.05 AMATEUR AMATEUR-SATELLITE 5.150			24-24.05 5.150 US211	24-24.05 AMATEUR AMATEUR-SATELLITE 5.150 US211	ISM Equipment (18) Amateur (97)
24.05-24.25 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.150			24.05-24.25 RADIOLOCATION G59 Earth exploration-satellite (active) 5.150	24.05-24.25 Amateur Earth exploration-satellite (active) Radiolocation 5.150	ISM Equipment (18) Private Land Mobile (90) Amateur (97)
24.25-24.45 FIXED	24.25-24.45 RADIONAVIGATION	24.25-24.45 RADIONAVIGATION FIXED MOBILE	24.25-24.45	24.25-24.45 FIXED	Fixed Microwave (101)
24.45-24.75 FIXED INTER-SATELLITE	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533	24.45-24.65 FIXED INTER-SATELLITE MOBILE RADIONAVIGATION 5.533	24.45-24.65 INTER-SATELLITE RADIONAVIGATION 5.533		Satellite Communications (25)
	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)	24.65-24.75 FIXED INTER-SATELLITE MOBILE 5.533	24.65-24.75 INTER-SATELLITE RADIOLOCATION-SATELLITE (Earth-to-space)		
24.75-25.25 FIXED	24.75-25.25 FIXED-SATELLITE (Earth-to-space) 5.535	24.75-25.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.535 MOBILE	24.75-25.05 RADIONAVIGATION	24.75-25.05 FIXED-SATELLITE (Earth-to-space) NG167 RADIONAVIGATION	Satellite Communications (25) Aviation (87)
			25.05-25.25	25.05-25.25 FIXED-SATELLITE (Earth-to-space) NG167 FIXED	Satellite Communications (25) Fixed Microwave (101)
25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)			25.25-25.5 FIXED INTER-SATELLITE 5.536 MOBILE Standard frequency and time signal-satellite (Earth-to-space)	25.25-25.5 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space)	Satellite Communications (25)

25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) 5.536B FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) 5.536C Standard frequency and time signal-satellite (Earth-to-space) 5.536A			25.5-27 EARTH EXPLORATION-SATELLITE (space-to-Earth) FIXED INTER-SATELLITE 5.536 MOBILE SPACE RESEARCH (space-to-Earth) Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	25.5-27 Inter-satellite 5.536 Standard frequency and time signal-satellite (Earth-to-space) 5.536A US258	Satellite Communications (25)
27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 FIXED FIXED-SATELLITE (Earth-to-space) INTER-SATELLITE 5.536 5.537 MOBILE		27-27.5 FIXED INTER-SATELLITE 5.536 MOBILE	27-27.5 Inter-satellite 5.536	
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE 5.538 5.540			27.5-30	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	Satellite Communications (25) Fixed Microwave (101)
28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541 5.540					
29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540 5.542	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542		29.5-29.9 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.529	Satellite Communications (25)
29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542				29.9-30 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) 5.525 5.526 5.527 5.543	

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31-31.3 FIXED 5.543A MOBILE Standard frequency and time signal-satellite (space-to-Earth) Space research 5.544 5.545 5.149			31-31.3 Standard frequency and time signal-satellite (space-to-Earth) US211 US342	31-31.3 FIXED MOBILE Standard frequency and time signal-satellite (space-to-Earth) US211 US342	Fixed Microwave (101)
31.3-31.5 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			31.3-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149 5.546	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340	31.5-31.8 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) Fixed Mobile except aeronautical mobile 5.149			
31.8-32 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547B 5.548			31.8-32.3 RADIONAVIGATION US69 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	31.8-32.3 SPACE RESEARCH (deep space) (space-to-Earth) US262 5.548 US211	
32-32.3 FIXED 5.547A RADIONAVIGATION SPACE RESEARCH (deep space) (space-to-Earth) 5.547 5.547C 5.548					
32.3-33 FIXED 5.547A INTER-SATELLITE RADIONAVIGATION 5.547 5.547D 5.548			32.3-33 INTER-SATELLITE US278 RADIONAVIGATION US69 5.548		Aviation (87)
33-33.4 FIXED 5.547A RADIONAVIGATION 5.547 5.547E			33-33.4 RADIONAVIGATION US69 US360 G117		

33.4-34.2 RADIOLOCATION 5.549	33.4-34.2 RADIOLOCATION US360 G117	33.4-34.2 Radiolocation US360	Private Land Mobile (90)
34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) 5.549	34.2-34.7 RADIOLOCATION SPACE RESEARCH (deep space) (Earth-to-space) US262 US360 G34 G117	34.2-34.7 Radiolocation Space research (deep space) (Earth-to-space) US262 US360	
34.7-35.2 RADIOLOCATION Space research 5.550 5.549	34.7-35.5 RADIOLOCATION	34.7-35.5 Radiolocation	
35.2-35.5 METEOROLOGICAL AIDS RADIOLOCATION 5.549	US360 G117	US360	
35.5-36 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.549 5.549A	35.5-36 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) US360 G117	35.5-36 Earth exploration-satellite (active) Radiolocation Space research (active) US360	
36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.149	36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US263 US342		
37-37.5 FIXED MOBILE SPACE RESEARCH (space-to-Earth) 5.547	37-38 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	37-37.5 FIXED MOBILE	Fixed Microwave (101)
37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth) 5.547		37.5-38.6 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	Satellite Communications (25) Fixed Microwave (101)
38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Earth exploration-satellite (space-to-Earth) 5.547	38-38.6 FIXED MOBILE		
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40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED FIXED-SATELLITE (space-to-Earth) 5.516B MOBILE MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth)			40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space) FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (Earth-to-space) Earth exploration-satellite (space-to-Earth) G117	40-40.5 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)	Satellite Communications (25)
40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile Mobile-satellite (space-to-Earth) 5.547	40.5-41 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Mobile 5.547	40.5-41 FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) US211 G117	40.5-41 FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE Fixed Mobile Mobile-satellite (space-to-Earth) US211	
41-42.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B BROADCASTING BROADCASTING-SATELLITE Mobile 5.547 5.551F 5.551H 5.551I			41-42.5 US211	41-42 FIXED FIXED-SATELLITE (space-to-Earth) BROADCASTING BROADCASTING-SATELLITE MOBILE US211	
				42-42.5 FIXED BROADCASTING BROADCASTING-SATELLITE MOBILE US211	Fixed Microwave (101)
42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149 5.547			42.5-43.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile RADIO ASTRONOMY US342	42.5-43.5 RADIO ASTRONOMY US342	

3.5-47 IOBILE 5.553 IOBILE-SATELLITE ADIONAVIGATION ADIONAVIGATION-SATELLITE .554		43.5-45.5 MOBILE-SATELLITE (Earth-to-space) FIXED-SATELLITE (Earth-to-space) G117	43.5-45.5	
		45.5-46.9 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554		RF Devices (15)
		46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE 5.554	46.9-47 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE FIXED 5.554	
7-47.2 MATEUR MATEUR-SATELLITE		47-48.2	47-47.2 AMATEUR AMATEUR-SATELLITE	Amateur (97)
7.2-47.5 IXED IXED-SATELLITE (Earth-to-space) 5.552 IOBILE .552A			47.2-48.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE	Satellite Communications (25)
7.5-47.9 IXED IXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A IOBILE	47.5-47.9 FIXED FIXED-SATELLITE (Earth-to-space) 5.552 MOBILE			
7.9-48.2 IXED IXED-SATELLITE (Earth-to-space) 5.552 IOBILE .552A				
8.2-48.54 IXED IXED-SATELLITE (Earth-to-space) 5.552 (space-to-Earth) 5.516B 5.554A 5.555B IOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.552 MOBILE	48.2-50.2 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE US264		
8.54-49.44 IXED IXED-SATELLITE (Earth-to-space) 5.552 IOBILE .149 5.340 5.555				
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50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Mobile-satellite (Earth-to-space)			50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) G117	50.4-51.4 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space)	
51.4-52.6 FIXED MOBILE 5.547 5.556			51.4-52.6 FIXED MOBILE		
52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) 5.340 5.556			52.6-54.25 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US246		
54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive) 5.556B			54.25-55.78 EARTH EXPLORATION-SATELLITE (passive) INTER-SATELLITE 5.556A SPACE RESEARCH (passive)		
55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED 5.557A INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			55.78-56.9 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US263 US353		
56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.558A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557			56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE G128 MOBILE 5.558 SPACE RESEARCH (passive) US263	56.9-57 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 SPACE RESEARCH (passive) US263	

57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) 5.547 5.557	57-58.2 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 SPACE RESEARCH (passive) US263		RF Devices (15)
58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) 5.547 5.556	58.2-59 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive) US353 US354		
59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive)	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED INTER-SATELLITE 5.556A MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	59-59.3 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE 5.558 RADIOLOCATION 5.559 SPACE RESEARCH (passive) US353	
59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138	59.3-64 FIXED INTER-SATELLITE MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	59.3-64 FIXED MOBILE 5.558 RADIOLOCATION 5.559 5.138 US353	RF Devices (15) ISM Equipment (18)
64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile 5.547 5.556	64-65 FIXED INTER-SATELLITE MOBILE except aeronautical mobile	64-65 FIXED MOBILE except aeronautical mobile	
65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH 5.547	65-66 EARTH EXPLORATION-SATELLITE FIXED MOBILE except aeronautical mobile SPACE RESEARCH	65-66 EARTH EXPLORATION-SATELLITE FIXED INTER-SATELLITE MOBILE except aeronautical mobile SPACE RESEARCH	
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81-84 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) 5.149 5.561A	81-84 FIXED FIXED-SATELLITE (Earth-to-space) US297 MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY Space research (space-to-Earth) US342 US388 US389		Fixed Microwave (101)
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164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			164-167 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
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182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340			182-185 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) US246		
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235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	235-238 EARTH EXPLORATION-SATELLITE (passive) FIXED-SATELLITE (space-to-Earth) SPACE RESEARCH (passive) 5.563A 5.563B	

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Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
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248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy 5.149			248-250 Radio astronomy US342	248-250 AMATEUR AMATEUR-SATELLITE Radio astronomy US342	Amateur (97)
250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.563A			250-252 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) 5.563A US246		
252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.149 5.554			252-265 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIONAVIGATION RADIONAVIGATION-SATELLITE 5.554 US211 US342		
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275-1000 (Not allocated) 5.565			275-1000 (Not allocated) 5.565		Amateur (97)

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International Footnotes

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5.56 The stations of services to which the bands 14–19.95 kHz and 20.05–70 kHz and in Region 1 also the bands 72–84 kHz and 86–90 kHz are allocated may transmit standard frequency and time signals. Such stations shall be afforded protection from harmful interference. In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan and Turkmenistan, the frequencies 25 kHz and 50 kHz will be used for this purpose under the same conditions.

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5.58 *Additional allocation:* In Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan, the band 67–70 kHz is also allocated to the radionavigation service on a primary basis.

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5.68 *Alternative allocation:* In Angola, Burundi, Congo (Rep. of the), Malawi, the Dem. Rep. of the Congo, Rwanda and South Africa, the band 160–200 kHz is allocated to the fixed service on a primary basis.

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5.70 *Alternative allocation:* In Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Ethiopia, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Oman, the Dem. Rep. of the Congo, Rwanda, South Africa, Swaziland, Tanzania, Chad, Zambia and Zimbabwe, the band 200–283.5 kHz is allocated to the aeronautical radionavigation service on a primary basis.

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5.79A When establishing coast stations in the NAVTEX service on the frequencies 490 kHz, 518 kHz and 4209.5 kHz, administrations are strongly recommended to coordinate the operating characteristics in accordance with the procedures of the International Maritime Organization (IMO) (see Resolution 339 (Rev.WRC–97))[3].

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5.82 In the maritime mobile service, the frequency 490 kHz is, from the date of full implementation of the GMDSS (see Resolution 331 (Rev.WRC–97))[3], to be used exclusively for the transmission by coast stations of navigational and meteorological warnings and urgent information to ships, by means of narrow-band direct-printing telegraphy. The conditions for use of the frequency 490 kHz are prescribed in Articles 31 and 52. In using the band 415–495 kHz for the aeronautical radionavigation service, administrations are requested to ensure that no harmful interference is caused to the frequency 490 kHz.

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5.87 *Additional allocation:* In Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland and Zimbabwe, the band 526.5–535 kHz is also allocated to the mobile service on a secondary basis.

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5.96 In Germany, Armenia, Austria, Azerbaijan, Belarus, Denmark, Estonia, the Russian Federation, Finland, Georgia, Hungary, Ireland, Iceland, Israel, Kazakhstan, Latvia, Liechtenstein, Lithuania, Malta, Moldova, Norway, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., the United Kingdom, Sweden, Switzerland, Tajikistan, Turkmenistan and Ukraine, administrations may allocate up to 200 kHz to their amateur service in the bands 1715–1800 kHz and 1850–2000 kHz. However, when allocating the bands within this range to their amateur service, administrations shall, after prior consultation with administrations of neighbouring countries, take such steps as may be necessary to prevent harmful interference from their amateur service to the fixed and mobile services of other countries. The mean power of any amateur station shall not exceed 10 W.

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5.98 *Alternative allocation:* In Angola, Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Cameroon, Congo (Rep. of the), Denmark, Egypt, Eritrea, Spain, Ethiopia, the Russian Federation, Georgia, Greece, Italy, Kazakhstan, Lebanon, Lithuania, Moldova, the Syrian Arab Republic, Kyrgyzstan, Somalia, Tajikistan, Tunisia, Turkmenistan, Turkey and Ukraine, the band 1810–1830 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.99 *Additional allocation:* In Saudi Arabia, Austria, Bosnia and Herzegovina, Iraq, the Libyan Arab Jamahiriya, Uzbekistan, Slovakia, Romania, Serbia and Montenegro, Slovenia, Chad, and Togo, the band 1810–1830 kHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.107 *Additional allocation:* In Saudi Arabia, Eritrea, Ethiopia, Iraq, the Libyan Arab Jamahiriya, Lesotho, Somalia and Swaziland, the band 2160–2170 kHz is also allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis. The mean power of stations in these services shall not exceed 50 W.

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5.112 *Alternative allocation:* In Bosnia and Herzegovina, Denmark, Malta, Serbia and Montenegro, and Sri Lanka, the band 2194–2300 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.114 *Alternative allocation:* In Bosnia and Herzegovina, Denmark, Iraq, Malta, and Serbia and Montenegro, the band 2502–2625 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

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5.117 *Alternative allocation:* In Bosnia and Herzegovina, Côte d'Ivoire, Denmark, Egypt, Liberia, Malta, Serbia and Montenegro, Sri Lanka and Togo, the band 3155–3200 kHz is allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.118 *Additional allocation:* In the United States, Mexico, Peru and Uruguay, the band 3230–3400 kHz is also allocated to the radiolocation service on a secondary basis.

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5.134 The use of the bands 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz by the broadcasting service as from 1 April 2007 is subject to the application of the procedure of Article 12. Administrations are encouraged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC–03).

5.136 The band 5900–5950 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis, as well as to the following services: In Region 1 to the land mobile service on a primary basis, in Region 2 to the mobile except aeronautical mobile (R) service on a primary basis, and in Region 3 to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev.WRC–95)[3]. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

boundary of the country in which they are located, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

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5.138A Until 29 March 2009, the band 6765–7000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis.

5.139 *Different category of service:* Until 29 March 2009, in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 6765–7000 kHz to the land mobile service is on a primary basis (see No. 5.33).

5.140 *Additional allocation:* In Angola, Iraq, Kenya, Rwanda, Somalia and Togo, the band 7000–7050 kHz is also allocated to the fixed service on a primary basis.

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5.141A *Additional allocation:* In Uzbekistan and Kyrgyzstan, the bands 7000–7100 kHz and 7100–7200 kHz are also allocated to the fixed and land mobile services on a secondary basis.

5.141B *Additional allocation:* After 29 March 2009, in Algeria, Saudi Arabia, Australia, Bahrain, Botswana, Brunei Darussalam, China, Comoros, Korea (Rep. of), Diego Garcia, Djibouti, Egypt, United Arab Emirates, Eritrea, Indonesia, Iran (Islamic Republic of), Japan, Jordan, Kuwait, the Libyan Arab Jamahiriya, Morocco, Mauritania, New Zealand, Oman, Papua New Guinea, Qatar, the Syrian Arab Republic, Singapore, Sudan, Tunisia, Viet Nam and Yemen, the band 7100–7200 kHz is also allocated to the fixed and the mobile, except aeronautical mobile (R), services on a primary basis.

5.141C In Regions 1 and 3, the band 7100–7200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis.

5.142 Until 29 March 2009, the use of the band 7100–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200–7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

5.143 The band 7300–7350 kHz is allocated, until 1 April 2007, to the fixed service on a primary basis and to the land mobile service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev.WRC–95) [3]. After 1 April 2007, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143A In Region 3, the band 7350–7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143B In Region 1, the band 7350–7450 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, on condition that harmful interference is not caused to the broadcasting service, frequencies in the band 7350–7450 kHz may be used by stations in the fixed and land mobile services communicating only within the boundary of the country in which they are located, each station using a total radiated power that shall not exceed 24 dBW.

5.143C *Additional allocation:* After 29 March 2009 in Algeria, Saudi Arabia, Bahrain, Comoros, Djibouti, Egypt, United Arab Emirates, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kuwait, Morocco, Mauritania, Oman, Qatar, the Syrian Arab Republic, Sudan, Tunisia and Yemen, the bands 7350–7400 kHz and 7400–7450 kHz are also allocated to the fixed service on a primary basis.

5.143D In Region 2, the band 7350–7400 kHz is allocated, until 29 March 2009, to the fixed service on a primary basis and to the land mobile service on a secondary basis. After 29 March 2009, frequencies in this band may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies for these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.143E Until 29 March 2009, the band 7450–8100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis.

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5.146 The bands 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 15600–15800 kHz, 17480–17550 kHz and 18900–19020 kHz are allocated to the fixed service on a primary basis until 1 April 2007, subject to application of the procedure referred to in Resolution 21 (Rev.WRC–95). After 1 April 2007, frequencies in these bands may be used by stations in the fixed service, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service. When using frequencies in the fixed service, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

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5.151 The bands 13570–13600 kHz and 13800–13870 kHz are allocated, until 1 April 2007, to the fixed service on a primary basis and to the mobile except aeronautical mobile (R) service on a secondary basis, subject to application of the procedure referred to in Resolution 21 (Rev.WRC–95) [3]. After 1 April 2007, frequencies in these bands may be used by stations in the above-mentioned services, communicating only within the boundary of the country in which they are located, on the condition that harmful interference is

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

not caused to the broadcasting service. When using frequencies in these services, administrations are urged to use the minimum power required and to take account of the seasonal use of frequencies by the broadcasting service published in accordance with the Radio Regulations.

5.152 *Additional allocation:* in Armenia, Azerbaijan, China, Côte d'Ivoire, the Russian Federation, Georgia, Iran (Islamic Republic of), Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 14250–14350 kHz is also allocated to the fixed service on a primary basis. Stations of the fixed service shall not use a radiated power exceeding 24 dBW.

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5.154 *Additional allocation:* in Armenia, Azerbaijan, the Russian Federation, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 18068–18168 kHz is also allocated to the fixed service on a primary basis for use within their boundaries, with a peak envelope power not exceeding 1 kW.

5.155 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the band 21850–21870 kHz is also allocated to the aeronautical mobile (R) services on a primary basis.

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5.163 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Slovakia, the Czech Rep., Tajikistan, Turkmenistan and Ukraine, the bands 47–48.5 MHz and 56.5–58 MHz are also allocated to the fixed and land mobile services on a secondary basis.

5.164 *Additional allocation:* in Albania, Germany, Austria, Belgium, Bosnia and Herzegovina, Botswana, Bulgaria, C∧ote; d'Ivoire, Denmark, Spain, Estonia, Finland, France, Gabon, Greece, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Jordan, Lebanon, Liechtenstein, Luxembourg, Madagascar, Mali, Malta, Morocco, Mauritania, Monaco, Nigeria, Norway, the Netherlands, Poland, Syrian Arab Republic, the United Kingdom, Serbia and Montenegro, Slovenia, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia and Turkey, the band 47–68 MHz, in Romania the band 47–58 MHz, in South Africa the band 47–50 MHz, and in the Czech Rep. the band 66–68 MHz, are also allocated to the land mobile service on a primary basis. However, stations of the land mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, existing or planned broadcasting stations of countries other than those mentioned in connection with the band.

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5.174 *Alternative allocation:* in Bulgaria, Hungary and Romania, the band 68–73 MHz is allocated to the broadcasting service on a primary basis and used in accordance with the decisions in the Final Acts of the Special Regional Conference (Geneva, 1960).

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5.177 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Kazakhstan, Latvia, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 73–74 MHz is also allocated to the broadcasting service on a primary basis, subject to agreement obtained under No. 9.21.

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5.179 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Bulgaria, China, the Russian Federation, Georgia, Kazakhstan, Lithuania, Moldova, Mongolia, Kyrgyzstan, Slovakia, Tajikistan, Turkmenistan and Ukraine, the bands 74.6–74.8 MHz and 75.2–75.4 MHz are also allocated to the aeronautical radionavigation service, on a primary basis, for ground-based transmitters only.

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5.181 *Additional allocation:* in Egypt, Israel and the Syrian Arab Republic, the band 74.8–75.2 MHz is also allocated to the mobile service on a secondary basis, subject to agreement obtained under No. 9.21. In order to ensure that harmful interference is not caused to stations of the aeronautical radionavigation service, stations of the mobile service shall not be introduced in the band until it is no longer required for the aeronautical radionavigation service by any administration which may be identified in the application of the procedure invoked under No. 9.21.

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5.203B *Additional allocation:* in Saudi Arabia, United Arab Emirates, Oman and Syrian Arab Republic, the band 136–137 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis until 1 January 2005.

5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Malaysia, Oman, Pakistan, the Philippines, Qatar, Serbia and Montenegro, Singapore, Thailand and Yemen, the band 137–138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. 5.33).

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5.210 *Additional allocation:* in France, Italy, the Czech Rep. and the United Kingdom, the bands 138–143.6 MHz and 143.65–144 MHz are also allocated to the space research service (space-to-Earth) on a secondary basis.

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5.212 *Alternative allocation:* in Angola, Botswana, Burundi, Cameroon, the Central African Rep., Congo (Rep. of the), Gabon, Gambia, Ghana, Guinea, Iraq, Libyan Arab Jamahiriya, Jordan, Lesotho, Liberia, Malawi, Mozambique, Namibia, Oman, Uganda, the Dem. Rep. of the Congo, Rwanda, Sierra Leone, South Africa, Swaziland, Chad, Togo, Zambia and Zimbabwe, the band 138–144 MHz is allocated to the fixed and mobile services on a primary basis.

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5.221 Stations of the mobile-satellite service in the band 148–149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Botswana, Brunei Darussalam, Bulgaria, Cameroon, China, Cyprus, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Eritrea, Spain, Estonia, Ethiopia, the Russian Federation, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Hungary, India, Iran (Islamic Republic of), Ireland, Iceland, Israel, Italy, the Libyan Arab Jamahiriya, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, the Philippines, Poland, Portugal, Qatar, the Syrian Arab Republic, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Senegal, Serbia and Montenegro, Sierra Leone, Singapore,

Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Zambia, and Zimbabwe.

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5.237 *Additional allocation:* In Congo (Rep. of the), Eritrea, Ethiopia, Gambia, Guinea, the Libyan Arab Jamahiriya, Malawi, Mali, Sierra Leone, Somali, Chad and Zimbabwe, the band 174–223 MHz is also allocated to the fixed and mobile services on a secondary basis.

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5.254 The bands 235–322 MHz and 335.4–399.9 MHz may be used by the mobile-satellite service, subject to agreement obtained under No. 9.21, on condition that stations in this service do not cause harmful interference to those of other services operating or planned to be operated in accordance with the Table of Frequency Allocations except for the additional allocation made in footnote No. 5.256A.

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5.256A *Additional allocation:* In China, the Russian Federation, Kazakhstan and Ukraine, the band 258–261 MHz is also allocated to the space research service (Earth-to-space) and space operation service (Earth-to-space) on a primary basis. Stations in the space research service (Earth-to-space) and space operation service (Earth-to-space) shall not cause harmful interference to, nor claim protection from, nor constrain the use and development of the mobile service systems and mobile-satellite service systems operating in the band. Stations in space research service (Earth-to-space) and space operation service (Earth-to-space) shall not constrain the future development of fixed service systems of other countries.

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5.262 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Botswana, Bulgaria, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, the Russian Federation, Georgia, Hungary, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Liberia, Malaysia, Moldova, Uzbekistan, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Serbia and Montenegro, Singapore, Somalia, Tajikistan, Turkmenistan and Ukraine, the band 400.05–401 MHz is also allocated to the fixed and mobile services on a primary basis.

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5.271 *Additional allocation:* In Azerbaijan, Belarus, China, India, Latvia, Lithuania, Kyrgyzstan and Turkmenistan, the band 420–460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

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5.273 *Different category of service:* In the Libyan Arab Jamahiriya, the allocation of the bands 430–432 MHz and 438–440 MHz to the radiolocation service is on a secondary basis (see No. 5.32).

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5.277 *Additional allocation:* In Angola, Armenia, Azerbaijan, Belarus, Cameroon, Congo (Rep. of the), Djibouti, the Russian Federation, Georgia, Hungary, Israel, Kazakhstan, Mali, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Rwanda, Tajikistan, Chad, Turkmenistan and Ukraine, the band 430–440 MHz is also allocated to the fixed service on a primary basis.

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5.279A The use of this band by sensors in the Earth exploration-satellite service (active) shall be in accordance with Recommendation ITU–R SA.1260–1. Additionally, the Earth exploration-satellite service (active) in the band 432–438 MHz shall not cause harmful interference to the aeronautical radionavigation service in China.

The provisions of this footnote in no way diminish the obligation of the Earth exploration-satellite service (active) to operate as a secondary service in accordance with Nos. 5.29 and 5.30.

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5.287 In the maritime mobile service, the frequencies 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz may be used by on-board communication stations. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The use of these frequencies in territorial waters may be subject to the national regulations of the administration concerned. The characteristics of the equipment used shall conform to those specified in Recommendation ITU–R M.1174 (see Resolution 341 (WRC–97) [7]).

5.288 In the territorial waters of the United States and the Philippines, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. The characteristics of the equipment used shall conform to those specified in Recommendation ITU–R M.1174–1.

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5.294 *Additional allocation:* In Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Ethiopia, Israel, the Libyan Arab Jamahiriya, Kenya, Lebanon, Malawi, the Syrian Arab Republic, Sudan, Chad and Yemen, the band 470–582 MHz is also allocated to the fixed service on a secondary basis.

5.296 *Additional allocation:* in Germany, Austria, Belgium, Côte d'Ivoire, Denmark, Spain, Finland, France, Ireland, Israel, Italy, the Libyan Arab Jamahiriya, Lithuania, Malta, Morocco, Monaco, Norway, the Netherlands, Portugal, the Syrian Arab Republic, the United Kingdom, Sweden, Switzerland, Swaziland and Tunisia, the band 470–790 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote.

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5.311 Within the frequency band 620–790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between the administrations concerned and those having services, operating in accordance with the Table, which may be affected (see Resolutions 33 (Rev.WRC–03) and 507 (Rev.WRC–03)). Such stations shall not produce a power flux-density in excess of the value -129 dB(W/m^2) for angles of arrival less than 20° (see Recommendation 705) within the territories of other countries without the consent of the administrations of those countries. Resolution 545 (WRC–03) applies.

5.312 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Georgia, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 645–862 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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[7] *Note by the Secretariat:* This Resolution was abrogated by WRC–03.

5.316 *Additional allocation:* In Germany, Saudi Arabia, Bosnia and Herzegovina, Burkina Faso, Cameroon, Côte d'Ivoire, Croatia, Denmark, Egypt, Finland, Greece, Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, The Former Yugoslav Republic of Macedonia, Liechtenstein, Mali, Monaco, Norway, the Netherlands, Portugal, the United Kingdom, the Syrian Arab Republic, Serbia and Montenegro, Sweden and Switzerland, the band 790–830 MHz, and in these same countries and in Spain, France, Gabon and Malta, the band 830–862 MHz, are also allocated to the mobile, except aeronautical mobile, service on a primary basis. However, stations of the mobile service in the countries mentioned in connection with each band referred to in this footnote shall not cause harmful interference to, or claim protection from, stations of services operating in accordance with the Table in countries other than those mentioned in connection with the band.

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5.323 *Additional allocation:* In Armenia, Azerbaijan, Belarus, Bulgaria, the Russian Federation, Hungary, Kazakhstan, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Slovakia, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 862–960 MHz is also allocated to the aeronautical radionavigation service on a primary basis. Such use is subject to agreement obtained under No. 9.21 with administrations concerned and limited to ground-based radiobeacons in operation on 27 October 1997 until the end of their lifetime.

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5.328A Stations in the radionavigation-satellite service in the band 1164–1215 MHz shall operate in accordance with the provisions of Resolution 609 (WRC–03) and shall not claim protection from stations in the aeronautical radionavigation service in the band 960–1215 MHz. No. 5.43A does not apply. The provisions of No. 21.18 shall apply.

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5.329 Use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1300 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. No. 5.43 shall not apply in respect of the radiolocation service. Resolution 608 (WRC–03) shall apply.

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5.330 *Additional allocation:* In Angola, Saudi Arabia, Bahrain, Bangladesh, Cameroon, China, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lebanon, Mozambique, Nepal, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the band 1215–1300 MHz is also allocated to the fixed and mobile services on a primary basis.

5.331 *Additional allocation:* In Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brazil, Burkina Faso, Burundi, Cameroon, China, Korea (Rep. of), Croatia, Denmark, Egypt, the United Arab Emirates, Estonia, the Russian Federation, Finland, France, Ghana, Greece, Guinea, Equatorial Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Israel, Jordan, Kenya, Kuwait, The Former Yugoslav Republic of Macedonia, Lesotho, Latvia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Mali, Mauritania, Nigeria, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the United Kingdom, Serbia and Montenegro, Slovenia, Somalia, Sudan, Sri Lanka, South Africa, Sweden, Switzerland, Thailand, Togo, Turkey, Venezuela and Viet Nam, the band 1215–1300 MHz is also allocated to the radionavigation service on a primary basis. In Canada and the United States, the band 1240–1300 MHz is also allocated to the radionavigation service, and use of the radionavigation service shall be limited to the aeronautical radionavigation service.

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5.334 *Additional allocation:* In Canada and the United States, the band 1350–1370 MHz is also allocated to the aeronautical radionavigation service on a primary basis.

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5.338 In Azerbaijan, Mongolia, Kyrgyzstan, Slovakia, the Czech Rep., Romania and Turkmenistan, existing installations of the radionavigation service may continue to operate in the band 1350–1400 MHz.

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5.339A *Additional allocation:* The band 1390–1392 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a secondary basis and the band 1430–1432 MHz is also allocated to the fixed-satellite service (space-to-Earth) on a secondary basis. These allocations are limited to use for feeder links for non-geostationary-satellite networks in the mobile-satellite service with service links below 1 GHz, and Resolution 745 (WRC–03) applies.

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5.345 Use of the band 1452–1492 MHz by the broadcasting-satellite service, and by the broadcasting service, is limited to digital audio broadcasting and is subject to the provisions of Resolution 528 (WARC–92)[3].

5.347 *Different category of service:* in Bangladesh, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cuba, Denmark, Egypt, Greece, Ireland, Italy, Mozambique, Portugal, Serbia and Montenegro, Sri Lanka, Swaziland, Yemen and Zimbabwe, the allocation of the band 1452–1492 MHz to the broadcasting-satellite service and the broadcasting service is on a secondary basis until 1 April 2007.

5.347A In the bands:

1452–1492 MHz,
1525–1559 MHz,
1613.8–1626.5 MHz,
2655–2670 MHz,
2670–2690 MHz,
21.4–22 GHz,

Resolution 739 (WRC–03) applies.

5.348 The use of the band 1518–1525 MHz by the mobile-satellite service is subject to coordination under No. 9.11A. In the band 1518–1525 MHz stations in the mobile-satellite service shall not claim protection from the stations in the fixed service. No. 5.43A does not apply.

5.348A In the band 1518–1525 MHz, the coordination threshold in terms of the power flux-density levels at the surface of the Earth in application of No. 9.11A for space stations in the mobile-satellite (space-to-Earth) service, with respect to the land mobile service use for specialized mobile radios or used in conjunction with public switched telecommunication networks (PSTN) operating within the territory of Japan, shall be -150 dB(W/m^2) in any 4 kHz band for all angles of arrival, instead of those given in Table 5–2 of Appendix 5. In the band 1518–1525 MHz stations in the mobile-satellite service shall not claim protection from stations in the mobile service in the territory of Japan. No. 5.43A does not apply.

5.348B In the band 1518–1525 MHz, stations in the mobile-satellite service shall not claim protection from aeronautical mobile telemetry stations in the mobile service in the territory of the United States (see Nos. 5.343 and

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

5.344) and in the countries listed in No. 5.342. No. 5.43A does not apply.

5.348C For the use of the bands 1518–1525 MHz and 1668–1675 MHz by the mobile-satellite service, see Resolution 225 (Rev.WRC–03).

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5.351A For the use of the bands 1525–1544 MHz, 1545–1559 MHz, 1610–1626.5 MHz, 1626.5–1645.5 MHz, 1646.5–1660.5 MHz, 1980–2010 MHz, 2170–2200 MHz, 2483.5–2500 MHz, 2500–2520 MHz and 2670–2690 MHz by the mobile-satellite service, see Resolutions 212 (Rev.WRC–97) and 225 (WRC–2000) [3].

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5.355 *Additional allocation:* In Bahrain, Bangladesh, Congo (Rep. of the), Egypt, Eritrea, Iraq, Israel, Kuwait, Lebanon, Malta, Qatar, Syrian Arab Republic, Somalia, Sudan, Chad, Togo and Yemen, the bands 1540–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a secondary basis.

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5.359 *Additional allocation:* In Germany, Saudi Arabia, Armenia, Austria, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Cameroon, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, the Libyan Arab Jamahiriya, Jordan, Kazakhstan, Kuwait, Lebanon, Lithuania, Mauritania, Moldova, Mongolia, Uganda, Uzbekistan, Pakistan, Poland, the Syrian Arab Republic, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Swaziland, Tajikistan, Tanzania, Tunisia, Turkmenistan and Ukraine, the bands 1550–1559 MHz, 1610–1645.5 MHz and 1646.5–1660 MHz are also allocated to the fixed service on a primary basis. Administrations are urged to make all practicable efforts to avoid the implementation of new fixed-service stations in these bands.

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5.362B *Additional allocation:* The band 1559–1610 MHz is also allocated to the fixed service on a primary basis until 1 January 2005 in Germany, Armenia, Azerbaijan, Belarus, Benin, Bosnia and Herzegovina, Bulgaria, Spain, the Russian Federation, France, Gabon, Georgia, Greece, Guinea, Guinea-Bissau, Hungary, Kazakhstan, Lithuania, Moldova, Mongolia, Nigeria, Uganda, Uzbekistan, Pakistan, Poland, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Senegal, Swaziland, Tajikistan, Tanzania, Turkmenistan and Ukraine, and until 1 January 2010 in Saudi Arabia, Cameroon, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Mali, Mauritania, the Syrian Arab Republic and Tunisia. After these dates, the fixed service may continue to operate on a secondary basis until 1 January 2015, at which time this allocation shall no longer be valid. Administrations are urged to take all practicable steps to protect the radionavigation-satellite service and the aeronautical radionavigation service and not authorize new frequency assignments to fixed-service systems in this band.

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5.369 *Different category of service:* in Angola, Australia, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, Syrian Arab Republic, the Dem. Rep. of the Congo, Sudan, Swaziland, Togo and Zambia, the allocation of the band 1610–1626.5 MHz to the radiodetermination-satellite service (Earth-to-space) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

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5.379B The use of the band 1668–1675 MHz by the mobile-satellite service is subject to coordination under No. 9.11A.

5.379C In order to protect the radio astronomy service in the band 1668–1670 MHz, the aggregate power flux-density values produced by mobile earth stations in a network of the mobile-satellite service operating in this band shall not exceed -181 dB(W/m^2) in 10 MHz and -194 dB(W/m^2) in any 20 kHz at any radio astronomy station recorded in the Master International Frequency Register, for more than 2% of integration periods of 2000 s.

5.379D For sharing of the band 1668–1675 MHz between the mobile-satellite service and the fixed, mobile and space research (passive) services, Resolution 744 (WRC–03) shall apply.

5.379E In the band 1668.4–1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to stations in the meteorological aids service in China, Iran (Islamic Republic of), Japan and Uzbekistan. In the band 1668.4–1675 MHz, administrations are urged not to implement new systems in the meteorological aids service and are encouraged to migrate existing meteorological aids service operations to other bands as soon as practicable.

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5.380A In the band 1670–1675 MHz, stations in the mobile-satellite service shall not cause harmful interference to, nor constrain the development of, existing earth stations in the meteorological-satellite service notified in accordance with Resolution 670 (WRC–03).

5.381 *Additional allocation:* In Afghanistan, Costa Rica, Cuba, India, Iran (Islamic Republic of) and Pakistan, the band 1690–1700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.382 *Different category of service:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Congo (Rep. of the), Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Guinea, Hungary, Iraq, Israel, Jordan, Kazakhstan, Kuwait, the Former Yugoslav Republic of Macedonia, Lebanon, Mauritania, Moldova, Mongolia, Oman, Uzbekistan, Poland, Qatar, the Syrian Arab Republic, Kyrgyzstan, Romania, Serbia and Montenegro, Somalia, Tajikistan, Tanzania, Turkmenistan, Ukraine and Yemen, the allocation of the band 1690–1700 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33), and in the Dem. People's Rep. of Korea, the allocation of the band 1690–1700 MHz to the fixed service is on a primary basis (see No. 5.33) and to the mobile, except aeronautical mobile, service on a secondary basis.

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5.386 *Additional allocation:* The band 1750–1850 MHz is also allocated to the space operation (Earth-to-space) and space research (Earth-to-space) services in Region 2, in Australia, Guam, India, Indonesia and Japan on a primary basis, subject to agreement obtained under No. 9.21, having particular regard to troposcatter systems.

5.387 *Additional allocation:* In Azerbaijan, Belarus, Georgia, Kazakhstan, Mongolia, Kyrgyzstan, Slovakia, Romania, Tajikistan and Turkmenistan, the band 1770–1790 MHz is also allocated to the meteorological-satellite service on a primary basis, subject to agreement obtained under No. 9.21.

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5.388A In Regions 1 and 3, the bands 1885–1980 MHz, 2010–2025 MHz and 2110–2170 MHz and, in Region 2, the bands 1885–1980 MHz and 2110–2160 MHz may be used by high altitude platform stations as base stations to provide International Mobile

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

Telecommunications—2000 (IMT–2000), in accordance with Resolution 221 (Rev.WRC–03). Their use by IMT–2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations.

5.388B In Algeria, Saudi Arabia, Bahrain, Benin, Burkina Faso, Cameroon, Comoros, Côte d'Ivoire, China, Cuba, Djibouti, Egypt, United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, India, Iran (Islamic Republic of), Israel, the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Mali, Morocco, Mauritania, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, Senegal, Singapore, Sudan, Tanzania, Chad, Togo, Tunisia, Yemen, Zambia and Zimbabwe, for the purpose of protecting fixed and mobile services, including IMT–2000 mobile stations, in their territories from co-channel interference, a high altitude platform station (HAPS) operating as an IMT–2000 base station in neighbouring countries, in the bands referred to in No. 5.388A, shall not exceed a co-channel power flux-density of -127 dB(W/(m^2 · MHz)) at the Earth's surface outside a country's borders unless explicit agreement of the affected administration is provided at the time of the notification of HAPS.

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5.395 In France and Turkey, the use of the band 2310–2360 MHz by the aeronautical mobile service for telemetry has priority over other uses by the mobile service.

5.396 Space stations of the broadcasting-satellite service in the band 2310–2360 MHz operating in accordance with No. 5.393 that may affect the services to which this band is allocated in other countries shall be coordinated and notified in accordance with Resolution 33 (Rev.WRC–97) [3]. Complementary terrestrial broadcasting stations shall be subject to bilateral coordination with neighbouring countries prior to their bringing into use.

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5.400 *Different category of service:* In Angola, Australia, Bangladesh, Burundi, China, Eritrea, Ethiopia, India, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Lebanon, Liberia, Madagascar, Mali, Pakistan, Papua New Guinea, the Dem. Rep. of the Congo, the Syrian Arab Republic, Sudan, Swaziland, Togo and Zambia, the allocation of the band 2483.5–2500 MHz to the radiodetermination-satellite service (space-to-Earth) is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21 from countries not listed in this provision.

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5.416 The use of the band 2520–2670 MHz by the broadcasting-satellite service is limited to national and regional systems for community reception, subject to agreement obtained under No. 9.21.

5.417A In applying provision No. 5.418, in Korea (Rep. of) and Japan, resolves 3 of Resolution 528 (Rev.WRC–03) is relaxed to allow the broadcasting-satellite service (sound) and the complementary terrestrial broadcasting service to additionally operate on a primary basis in the band 2605–2630 MHz. This use is limited to systems intended for national coverage. An administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416. The provisions of No. 5.416 and Table 21–4 of Article 21 do not apply. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) in the band 2605–2630 MHz is subject to the provisions of Resolution 539 (Rev.WRC–03). The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2605–2630 MHz for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, for all conditions and for all methods of modulation, shall not exceed the following limits:

-130 dB(W/(m^2 · MHz))	for $0° \leq \theta \leq 5°$
$-130 + 0.4\ (\theta - 5)$ dB(W/(m^2 · MHz))	for $5° < \theta \leq 25°$
-122 dB(W/(m^2 · MHz))	for $25° < \theta \leq 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. In the case of the broadcasting-satellite service (sound) networks of Korea (Rep. of), as an exception to the limits above, the power flux-density value of -122 dB(W/(m^2 · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1000 km around the territory of the administration notifying the broadcasting-satellite service (sound) system, for angles of arrival greater than 35°.

5.417B In Korea (Rep. of) and Japan, use of the band 2605–2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 4 July 2003, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 5 July 2003.

5.417C Use of the band 2605–2630 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003, is subject to the application of the provisions of No. 9.12.

5.417D Use of the band 2605–2630 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 4 July 2003 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.417A, and No. 22.2 does not apply.

5.418 *Additional allocation:* in Korea (Rep. of), India, Japan, Pakistan and Thailand, the band 2535–2655 MHz is also allocated to the broadcasting-satellite service (sound) and complementary terrestrial broadcasting service on a primary basis. Such use is limited to digital audio broadcasting and is subject to the provisions of

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

Resolution 528 (Rev.WRC–03). The provisions of No. 5.416 and Table 21–4 of Article 21, do not apply to this additional allocation. Use of non-geostationary-satellite systems in the broadcasting-satellite service (sound) is subject to Resolution 539 (Rev.WRC–03). Geostationary broadcasting-satellite service (sound) systems for which complete Appendix 4 coordination information has been received after 1 June 2005 are limited to systems intended for national coverage. The power flux-density at the Earth's surface produced by emissions from a geostationary broadcasting-satellite service (sound) space station operating in the band 2630–2655 MHz, and for which complete Appendix 4 coordination information has been received after 1 June 2005, shall not exceed the following limits, for all conditions and for all methods of modulation:

-130 dB(W/(m^2 · MHz))	for $0° \leq \theta \leq 5°$
$-130 + 0.4\ (\theta - 5)$ dB(W/(m^2 · MHz))	for $5° < \theta \leq 25°$
-122 dB(W/(m^2 · MHz))	for $25° < \theta \leq 90°$

where θ is the angle of arrival of the incident wave above the horizontal plane, in degrees. These limits may be exceeded on the territory of any country whose administration has so agreed. As an exception to the limits above, the pfd value of -122 dB(W/(m^2 · MHz)) shall be used as a threshold for coordination under No. 9.11 in an area of 1500 km around the territory of the administration notifying the broadcasting-satellite service (sound) system. In addition, the power flux-density value shall not exceed -100 dB(W/(m^2 · MHz)) anywhere on the territory of the Russian Federation.

In addition, an administration listed in this provision shall not have simultaneously two overlapping frequency assignments, one under this provision and the other under No. 5.416 for systems for which complete Appendix 4 coordination information has been received after 1 June 2005.

5.418A In certain Region 3 countries listed in No. 5.418, use of the band 2630–2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound) for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12A, in respect of geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received after 2 June 2000, and No. 22.2 does not apply. No. 22.2 shall continue to apply with respect to geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, is considered to have been received before 3 June 2000.

5.418B Use of the band 2630–2655 MHz by non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418, for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000, is subject to the application of the provisions of No. 9.12.

5.418C Use of the band 2630–2655 MHz by geostationary-satellite networks for which complete Appendix 4 coordination information, or notification information, has been received after 2 June 2000 is subject to the application of the provisions of No. 9.13 with respect to non-geostationary-satellite systems in the broadcasting-satellite service (sound), pursuant to No. 5.418 and No. 22.2 does not apply.

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5.422 *Additional allocation:* in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Brunei Darussalam, Congo (Rep. of the), Côte d'Ivoire, Cuba, Egypt, the United Arab Emirates, Eritrea, Ethiopia, the Russian Federation, Gabon, Georgia, Guinea, Guinea-Bissau, Iran (Islamic Republic of), Iraq, Israel, Jordan, Lebanon, Mauritania, Moldova, Mongolia, Nigeria, Oman, Uzbekistan, Pakistan, the Philippines, Qatar, Syrian Arab Republic, Kyrgyzstan, the Dem. Rep. of the Congo, Romania, Serbia and Montenegro, Somalia, Tajikistan, Tunisia, Turkmenistan, Ukraine and Yemen, the band 2690–2700 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

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5.424A In the band 2900–3100 MHz, stations in the radiolocation service shall not cause harmful interference to, nor claim protection from, radar systems in the radionavigation service.

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5.428 *Additional allocation:* in Azerbaijan, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3100–3300 MHz is also allocated to the radionavigation service on a primary basis.

5.429 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, China, Congo (Rep. of the), Korea (Rep. of), the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Oman, Pakistan, Qatar, the Syrian Arab Republic, Dem. People's Rep. of Korea and Yemen, the band 3300–3400 MHz is also allocated to the fixed and mobile services on a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service.

5.430 *Additional allocation:* in Azerbaijan, Cuba, Mongolia, Kyrgyzstan, Romania and Turkmenistan, the band 3300–3400 MHz is also allocated to the radionavigation service on a primary basis.

5.431 *Additional allocation:* in Germany, Israel and the United Kingdom, the band 3400–3475 MHz is also allocated to the amateur service on a secondary basis.

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5.443B In order not to cause harmful interference to the microwave landing system operating above 5030 MHz, the aggregate power flux-density produced at the Earth's surface in the band 5030–5150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5010–5030 MHz shall not exceed -124.5 dB(W/m^2) in a 150 kHz band. In order not to cause harmful interference to the radio astronomy service in the band 4990–5000 MHz, radionavigation-satellite service systems operating in the band 5010–5030 MHz shall comply with the limits in the band 4990–5000 MHz defined in Resolution 741 (WRC–03).

5.444 The band 5030–5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of this band. For the use of this band, No. 5.444A and Resolution 114 (Rev.WRC–03) apply.

5.444A *Additional allocation:* the band 5091–5150 MHz is also allocated to the fixed-satellite service (Earth-to-space) on a primary basis. This allocation is limited to feeder links of

non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A.

In the band 5091–5150 MHz, the following conditions also apply:

—Prior to 1 January 2018, the use of the band 5091–5150 MHz by feeder links of non-geostationary-satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC–03);

—Prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5000–5091 MHz band, shall take precedence over other uses of this band;

—After 1 January 2012, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;

—After 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service.

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5.447E *Additional allocation:* The band 5250–5350 MHz is also allocated to the fixed service on a primary basis in the following countries in Region 3: Australia, Korea (Rep. of), India, Indonesia, Iran (Islamic Republic of), Japan, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand and Viet Nam. The use of this band by the fixed service is intended for the implementation of fixed wireless access systems and shall comply with Recommendation ITU–R F.1613. In addition, the fixed service shall not claim protection from the radiodetermination, Earth exploration-satellite (active) and space research (active) services, but the provisions of No. 5.43A do not apply to the fixed service with respect to the Earth exploration-satellite (active) and space research (active) services. After implementation of fixed wireless access systems in the fixed service with protection for the existing radiodetermination systems, no more stringent constraints should be imposed on the fixed wireless access systems by future radiodetermination implementations.

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5.453 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), C''te d'Ivoire, Egypt, the United Arab Emirates, Gabon, Guinea, Equatorial Guinea, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Japan, Jordan, Kenya, Kuwait, Lebanon, Madagascar, Malaysia, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Sri Lanka, Swaziland, Tanzania, Chad, Thailand, Togo, Viet Nam and Yemen, the band 5650–5850 MHz is also allocated to the fixed and mobile services on a primary basis. In this case, the provisions of Resolution 229 (WRC–03) do not apply.

5.454 *Different category of service:* in Azerbaijan, the Russian Federation, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 5670–5725 MHz to the space research service is on a primary basis (see No. 5.33).

5.455 *Additional allocation:* in Armenia, Azerbaijan, Belarus, Cuba, the Russian Federation, Georgia, Hungary, Kazakhstan, Latvia, Moldova, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the band 5670–5850 MHz is also allocated to the fixed service on a primary basis.

5.456 *Additional allocation:* in Cameroon, the band 5755–5850 MHz is also allocated to the fixed service on a primary basis.

5.457A In the bands 5925–6425 MHz and 14–14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC–03).

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5.460 The use of the band 7145–7190 MHz by the space research service (Earth-to-space) is restricted to deep space; no emissions to deep space shall be effected in the band 7190–7235 MHz. Geostationary satellites in the space research service operating in the band 7190–7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

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5.466 *Different category of service:* in Israel, Singapore and Sri Lanka, the allocation of the band 8400–8500 MHz to the space research service is on a secondary basis (see No. 5.32).

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5.468 *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Burundi, Cameroon, China, Congo (Rep. of the), Costa Rica, Egypt, the United Arab Emirates, Gabon, Guyana, Indonesia, Iran (Islamic Republic of), Iraq, the Libyan Arab Jamahiriya, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Malaysia, Mali, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, Qatar, Syrian Arab Republic, the Dem. People's Rep. of Korea, Senegal, Singapore, Somalia, Swaziland, Tanzania, Chad, Togo, Tunisia and Yemen, the band 8500–8750 MHz is also allocated to the fixed and mobile services on a primary basis.

5.469 *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Hungary, Lithuania, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, the Czech Rep., Romania, Tajikistan, Turkmenistan and Ukraine, the band 8500–8750 MHz is also allocated to the land mobile and radionavigation services on a primary basis.

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5.473 *Additional allocation:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Cuba, the Russian Federation, Georgia, Hungary, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Romania, Tajikistan, Turkmenistan and Ukraine, the bands 8850–9000 MHz and 9200–9300 MHz are also allocated to the radionavigation service on a primary basis.

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5.477 *Different category of service:* in Algeria, Saudi Arabia, Bahrain, Bangladesh, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Guyana, India, Indonesia, Iran (Islamic Republic of), Iraq, Jamaica, Japan, Jordan, Kuwait, Lebanon, Liberia, Malaysia, Nigeria, Oman, Pakistan, Qatar, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Trinidad and Tobago, and Yemen, the allocation of the band 9800–10000 MHz to the fixed service is on a primary basis (see No. 5.33).

5.478 *Additional allocation:* in Azerbaijan, Bulgaria, Mongolia, Kyrgyzstan, Romania, Turkmenistan and Ukraine, the band 9800–10000 MHz is also allocated to the radionavigation service on a primary basis.

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5.481 *Additional allocation:* in Germany, Angola, Brazil, China, Costa Rica, Côte d'Ivoire, El Salvador, Ecuador, Spain, Guatemala, Hungary, Japan, Kenya, Morocco, Nigeria, Oman, Uzbekistan, Paraguay, Peru, the Dem. People's Rep. of Korea, Tanzania, Thailand and Uruguay, the band 10.45–10.5 GHz is also allocated to the fixed and mobile services on a primary basis.

5.482 In the band 10.6–10.68 GHz, stations of the fixed and mobile, except aeronautical mobile, services shall be limited to a maximum equivalent isotropically radiated power of 40 dBW and the power delivered to the antenna

shall not exceed –3 dBW. These limits may be exceeded subject to agreement obtained under No. 9.21. However, in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, China, the United Arab Emirates, Georgia, India, Indonesia, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Kuwait, Latvia, Lebanon, Moldova, Nigeria, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, Tajikistan and Turkmenistan, the restrictions on the fixed and mobile, except aeronautical mobile, services are not applicable.

5.483 *Additional allocation:* In Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, China, Colombia, Korea (Rep. of), Costa Rica, Egypt, the United Arab Emirates, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Lebanon, Mongolia, Uzbekistan, Qatar, Kyrgyzstan, the Dem. People's Rep. of Korea, Romania, Serbia and Montenegro, Tajikistan, Turkmenistan and Yemen, the band 10.68–10.7 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis. Such use is limited to equipment in operation by 1 January 1985.

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5.494 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Cameroon, the Central African Rep., Congo (Rep. of the), Côte d'Ivoire, Egypt, the United Arab Emirates, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Iraq, Israel, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Madagascar, Mali, Morocco, Mongolia, Nigeria, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Somalia, Sudan, Chad, Togo and Yemen, the band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.

5.495 *Additional allocation:* In Bosnia and Herzegovina, Croatia, France, Greece, Liechtenstein, Monaco, Uganda, Portugal, Romania, Serbia and Montenegro, Slovenia, Switzerland, Tanzania and Tunisia, the band 12.5–12.75 GHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis.

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5.500 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Brunei Darussalam, Cameroon, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kuwait, Lebanon, Madagascar, Malaysia, Mali, Malta, Morocco, Mauritania, Nigeria, Pakistan, Qatar, the Syrian Arab Republic, Singapore, Sudan, Chad and Tunisia, the band 13.4–14 GHz is also allocated to the fixed and mobile services on a primary basis.

5.501 *Additional allocation:* In Azerbaijan, Hungary, Japan, Mongolia, Kyrgyzstan, Romania, the United Kingdom and Turkmenistan, the band 13.4–14 GHz is also allocated to the radionavigation service on a primary basis.

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5.502 In the band 13.75–14 GHz, an earth station of a geostationary fixed-satellite service network shall have a minimum antenna diameter of 1.2 m and an earth station of a non-geostationary fixed-satellite service system shall have a minimum antenna diameter of 4.5 m. In addition, the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services shall not exceed 59 dBW for elevation angles above 2° and 65 dBW at lower angles. Before an administration brings into use an earth station in a geostationary-satellite network in the fixed-satellite service in this band with an antenna size smaller than 4.5 m, it shall ensure that the power flux-density produced by this earth station does not exceed:

— − 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced at 36 m above sea level at the low water mark, as officially recognized by the coastal State;

— − 115 dB(W/(m^2 · 10 MHz)) for more than 1% of the time produced 3 m above ground at the border of the territory of an administration deploying or planning to deploy land mobile radars in this band, unless prior agreement has been obtained.

For earth stations within the fixed-satellite service having an antenna diameter greater than or equal to 4.5 m, the e.i.r.p. of any emission should be at least 68 dBW and should not exceed 85 dBW.

5.503 In the band 13.75–14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band:

— In the band 13.77–13.78 GHz, the e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed:

(i) 4.7D + 28 dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 1.2 m and less than 4.5 m;

(ii) 49.2 + 20 log(D/4.5) dB(W/40 kHz), where D is the fixed-satellite service earth station antenna diameter (m) for antenna diameters equal to or greater than 4.5 m and less than 31.9 m;

(iii) 66.2 dB(W/40 kHz) for any fixed-satellite service earth station for antenna diameters (m) equal to or greater than 31.9 m;

(iv) 56.2 dB(W/4 kHz) for narrow-band (less than 40 kHz of necessary bandwidth) fixed-satellite service earth station emissions from any fixed-satellite service earth station having an antenna diameter of 4.5 m or greater;

— The e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in the 6 MHz band from 13.772 to 13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density in these frequency ranges to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use by an earth station of an e.i.r.p. meeting the above limits in clear-sky conditions.

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5.504C In the band 14–14.25 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, C''te d'Ivoire, Egypt, Guinea, India, Iran (Islamic Republic of), Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

5.505 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Bahrain, Bangladesh, Botswana, Brunei Darussalam, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Egypt, the United Arab Emirates, Gabon, Guatemala, Guinea, India, Indonesia,

Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kuwait, Lesotho, Lebanon, Malaysia, Mali, Morocco, Mauritania, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. People's Rep. of Korea, Singapore, Somalia, Sudan, Swaziland, Tanzania, Chad and Yemen, the band 14–14.3 GHz is also allocated to the fixed service on a primary basis.

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5.506A In the band 14–14.5 GHz, ship earth stations with an e.i.r.p. greater than 21 dBW shall operate under the same conditions as earth stations located on board vessels, as provided in Resolution 902 (WRC–03). This footnote shall not apply to ship earth stations for which the complete Appendix 4 information has been received by the Bureau prior to 5 July 2003.

5.506B Earth stations located on board vessels communicating with space stations in the fixed-satellite service may operate in the frequency band 14–14.5 GHz without the need for prior agreement from Cyprus, Greece and Malta, within the minimum distance given in Resolution 902 (WRC–03) from these countries.

5.508 *Additional allocation:* In Germany, Bosnia and Herzegovina, France, Italy, Libyan Arab Jamahiriya, The Former Yugoslav Rep. of Macedonia, the United Kingdom, Serbia and Montenegro and Slovenia, the band 14.25–14.3 GHz is also allocated to the fixed service on a primary basis.

5.508A In the band 14.25–14.3 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, China, Côte d'Ivoire, Egypt, France, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom and Tunisia by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

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5.509A In the band 14.3–14.5 GHz, the power flux-density produced on the territory of the countries of Saudi Arabia, Botswana, Cameroon, China, Côte d'Ivoire, Egypt, France, Gabon, Guinea, India, Iran (Islamic Republic of), Italy, Kuwait, Lesotho, Morocco, Nigeria, Oman, the Syrian Arab Republic, the United Kingdom, Sri Lanka, Tunisia and Viet Nam by any aircraft earth station in the aeronautical mobile-satellite service shall not exceed the limits given in Annex 1, Part B of Recommendation ITU–R M.1643, unless otherwise specifically agreed by the affected administration(s). The provisions of this footnote in no way derogate the obligations of the aeronautical mobile-satellite service to operate as a secondary service in accordance with No. 5.29.

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5.512 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, Cameroon, Congo (Rep. of the), Costa Rica, Egypt, El Salvador, the United Arab Emirates, Eritrea, Finland, Guatemala, India, Indonesia, Iran (Islamic Republic of), the Libyan Arab Jamahiriya, Jordan, Kenya, Kuwait, Malaysia, Mali, Morocco, Mauritania, Mozambique, Nepal, Nicaragua, Oman, Pakistan, Qatar, Serbia and Montenegro, Singapore, Slovenia, Somalia, Sudan, Swaziland, Tanzania, Chad, Togo and Yemen, the band 15.7–17.3 GHz is also allocated to the fixed and mobile services on a primary basis.

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5.514 *Additional allocation:* In Algeria, Angola, Saudi Arabia, Austria, Bahrain, Bangladesh, Bosnia and Herzegovina, Cameroon, Costa Rica, El Salvador, the United Arab Emirates, Finland, Guatemala, India, Iran (Islamic Republic of), Iraq, Israel, Italy, the Libyan Arab Jamahiriya, Japan, Jordan, Kuwait, Lithuania, Nepal, Nicaragua, Nigeria, Oman, Uzbekistan, Pakistan, Qatar, Kyrgyzstan, Serbia and Montenegro, Slovenia and Sudan, the band 17.3–17.7 GHz is also allocated to the fixed and mobile services on a secondary basis. The power limits given in Nos. 21.3 and 21.5 shall apply.

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5.516A In the band 17.3–17.7 GHz, earth stations of the fixed-satellite service (space-to-Earth) in Region 1 shall not claim protection from the broadcasting-satellite service feeder-link earth stations operating under Appendix 30A, nor put any limitations or restrictions on the locations of the broadcasting-satellite service feeder-link earth stations anywhere within the service area of the feeder link.

5.516B The following bands are identified for use by high-density applications in the fixed-satellite service:

17.3–17.7 GHz	(space-to-Earth) in Region 1,
18.3–19.3 GHz	(space-to-Earth) in Region 2,
19.7–20.2 GHz	(space-to-Earth) in all Regions,
39.5–40 GHz	(space-to-Earth) in Region 1,
40–40.5 GHz	(space-to-Earth) in all Regions,
40.5–42 GHz	(space-to-Earth) in Region 2,
47.5–47.9 GHz	(space-to-Earth) in Region 1,
48.2–48.54 GHz	(space-to-Earth) in Region 1,
49.44–50.2 GHz	(space-to-Earth) in Region 1, and
27.5–27.82 GHz	(Earth-to-space) in Region 1,
28.35–28.45 GHz	(Earth-to-space) in Region 2,
28.45–28.94 GHz	(Earth-to-space) in all Regions,
28.94–29.1 GHz	(Earth-to-space) in Region 2 and 3,
29.25–29.46 GHz	(Earth-to-space) in Region 2,
29.46–30 GHz	(Earth-to-space) in all Regions,
48.2–50.2 GHz	(Earth-to-space) in Region 2.

This identification does not preclude the use of these bands by other fixed-satellite service applications or by other services to which these bands are allocated on a co-primary basis and does not establish priority in these Radio Regulations among users of the bands. Administrations should take this into account when considering regulatory provisions in relation to these bands. See Resolution 143 (WRC–03).

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5.521 *Alternative allocation:* In Germany, Denmark, the United Arab Emirates and Greece, the band 18.1–18.4 GHz is allocated to the fixed, fixed-satellite (space-to-Earth) and mobile services on a primary basis (see No.

5.33). The provisions of No. 5.519 also apply.

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5.530 In Regions 1 and 3, the allocation to the broadcasting-satellite service in the band 21.4–22 GHz shall come into effect on 1 April 2007. The use of this band by the broadcasting-satellite service after that date and on an interim basis prior to that date is subject to the provisions of Resolution 525 (WARC–92) [3]

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5.536A Administrations operating earth stations in the Earth exploration-satellite service or the space research service shall not claim protection from stations in the fixed and mobile services operated by other administrations. In addition, earth stations in the Earth exploration-satellite service or in the space research service should be operated taking into account Recommendations ITU–R SA.1278 and ITU–R SA.1625, respectively.

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5.536C In Algeria, Saudi Arabia, Bahrain, Botswana, Brazil, Cameroon, Comoros, Cuba, Djibouti, Egypt, United Arab Emirates, Estonia, Finland, Iran (Islamic Republic of), Israel, Jordan, Kenya, Kuwait, Lithuania, Malaysia, Morocco, Nigeria, Oman, Qatar, Syrian Arab Republic, Somalia, Sudan, Tanzania, Tunisia, Uruguay, Zambia and Zimbabwe, earth stations operating in the space research service in the band 25.5–27 GHz shall not claim protection from, or constrain the use and deployment of, stations of the fixed and mobile services.

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5.537A In Bhutan, Korea (Rep. of), the Russian Federation, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 27.5–28.35 GHz may also be used by high altitude platform stations (HAPS). The use of HAPS within the band 27.5–28.35 GHz is limited, within the territory of the countries listed above, to a single 300 MHz sub-band. Such use of 300 MHz of the fixed-service allocation by HAPS in the above countries is further limited to operation in the HAPS-to-ground direction and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems or other co-primary services. Furthermore, the development of these other services shall not be constrained by HAPS. See Resolution 145 (WRC–03).

5.538 *Additional allocation:* The bands 27.500–27.501 GHz and 29.999–30.000 GHz are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis for the beacon transmissions intended for up-link power control. Such space-to-Earth transmissions shall not exceed an equivalent isotropically radiated power (e.i.r.p.) of +10 dBW in the direction of adjacent satellites on the geostationary-satellite orbit. In the band 27.500–27.501 GHz, such space-to-Earth transmissions shall not produce a power flux-density in excess of the values specified in Article 21, Table 21–4 on the Earth's surface.

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5.543A In Bhutan, Korea (Rep. of), the Russian Federation, Indonesia, Iran (Islamic Republic of), Japan, Kazakhstan, Lesotho, Malaysia, Maldives, Mongolia, Myanmar, Uzbekistan, Pakistan, the Philippines, Kyrgyzstan, the Dem. People's Rep. of Korea, Sri Lanka, Thailand and Viet Nam, the allocation to the fixed service in the band 31–31.3 GHz may also be used by systems using high altitude platform stations (HAPS) in the ground-to-HAPS direction. The use of the band 31–31.3 GHz by systems using HAPS is limited to the territory of the countries listed above and shall not cause harmful interference to, nor claim protection from, other types of fixed-service systems, systems in the mobile service and systems operated under No. 5.545. Furthermore, the development of these services shall not be constrained by HAPS. Systems using HAPS in the band 31–31.3 GHz shall not cause harmful interference to the radio astronomy service having a primary allocation in the band 31.3–31.8 GHz, taking into account the protection criterion as given in Recommendation ITU–R RA.769. In order to ensure the protection of satellite passive services, the level of unwanted power density into a HAPS ground station antenna in the band 31.3–31.8 GHz shall be limited to −106 dB(W/MHz) under clear-sky conditions, and may be increased up to −100 dB(W/MHz) under rainy conditions to take account of rain attenuation, provided the effective impact on the passive satellite does not exceed the impact under clear-sky conditions as given above. See Resolution 145 (WRC–03).

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5.545 *Different category of service:* In Armenia, Azerbaijan, Georgia, Mongolia, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 31–31.3 GHz to the space research service is on a primary basis (see No. 5.33).

5.546 *Different category of service:* In Saudi Arabia, Armenia, Azerbaijan, Belarus, Egypt, the United Arab Emirates, Spain, Estonia, the Russian Federation, Finland, Georgia, Hungary, Iran (Islamic Republic of), Israel, Jordan, Latvia, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, the Syrian Arab Republic, Kyrgyzstan, Romania, the United Kingdom, South Africa, Tajikistan, Turkmenistan and Turkey, the allocation of the band 31.5–31.8 GHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. 5.33).

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5.547C *Alternative allocation:* In the United States, the band 32–32.3 GHz is allocated to the radionavigation and space research (deep space) (space-to-Earth) services on a primary basis.

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5.548 In designing systems for the inter-satellite service in the band 32.3–33 GHz, for the radionavigation service in the band 32–33 GHz, and for the space research service (deep space) in the band 31.8–32.3 GHz, administrations shall take all necessary measures to prevent harmful interference between these services, bearing in mind the safety aspects of the radionavigation service (see Recommendation 707).

5.549 *Additional allocation:* In Saudi Arabia, Bahrain, Bangladesh, Egypt, the United Arab Emirates, Gabon, Indonesia, Iran (Islamic Republic of), Iraq, Israel, the Libyan Arab Jamahiriya, Jordan, Kuwait, Lebanon, Malaysia, Mali, Malta, Morocco, Mauritania, Nepal, Nigeria, Oman, Pakistan, the Philippines, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Singapore, Somalia, Sudan, Sri Lanka, Togo, Tunisia and Yemen, the band 33.4–36 GHz is also allocated to the fixed and mobile services on a primary basis.

5.549A In the band 35.5–36.0 GHz, the mean power flux-density at the Earth's surface, generated by any spaceborne sensor in the Earth exploration-satellite service (active) or space research service (active), for any angle greater than 0.8° from the beam centre shall not exceed −73.3 dB(W/m²) in this band.

5.550 *Different category of service:* In Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Mongolia, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan, the allocation of the band 34.7–35.2 GHz to the space

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

research service is on a primary basis (see No. 5.33).

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5.551I The power flux-density in the band 42.5–43.5 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth), or the broadcasting-satellite service (space-to-Earth) operating in the 42–42.5 GHz band, shall not exceed the following values at the site of any radio astronomy station:

—137 dB(W/m²) in 1 GHz and −153 dB(W/m²) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a single-dish telescope; and

—116 dB(W/m²) in any 500 kHz of the 42.5–43.5 GHz band at the site of any radio astronomy station registered as a very long baseline interferometry station.

These values shall apply at the site of any radio astronomy station that either:

—was in operation prior to 5 July 2003 and has been notified to the Bureau before 4 January 2004; or

—was notified before the date of receipt of the complete Appendix 4 information for coordination or notification, as appropriate, for the space station to which the limits apply.

Other radio astronomy stations notified after these dates may seek an agreement with administrations that have authorized the space stations. In Region 2, Resolution 743 (WRC–03) shall apply. The limits in this footnote may be exceeded at the site of a radio astronomy station of any country whose administration so agreed.

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5.552A The allocation to the fixed service in the bands 47.2–47.5 GHz and 47.9–48.2 GHz is designated for use by high altitude platform stations. The use of the bands 47.2–47.5 GHz and 47.9–48.2 GHz is subject to the provisions of Resolution 122 (WRC–97) [3].

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5.555B The power flux-density in the band 48.94–49.04 GHz produced by any geostationary space station in the fixed-satellite service (space-to-Earth) operating in the bands 48.2–48.54 GHz and 49.44–50.2 GHz shall not exceed −151.8 dB (W/m²) in any 500 kHz band at the site of any radio astronomy station.

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United States (US) Footnotes

(These footnotes, each consisting of the letters ''US'' followed by one or more digits, denote stipulations applicable to both Federal and non-Federal operations and thus appear in both the Federal Table and the non-Federal Table.)

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US18 In the bands 9–14 kHz, 90–110 kHz, 190–415 kHz, 510–535 kHz, and 2700–2900 MHz, navigation aids in the U.S. and its insular areas are normally operated by the Federal Government. However, authorizations may be made by the FCC for non-Federal operations in these bands subject to the conclusion of appropriate arrangements between the FCC and the Federal agencies concerned and upon special showing of need for service which the Federal Government is not yet prepared to render.

US25 The use of frequencies in the band 25.85–26.175 MHz may be authorized in any area to non-Federal remote pickup broadcast base and mobile stations on the condition that harmful interference is not caused to stations of the broadcasting service in the band 25.85–26.1 MHz and to stations of the maritime mobile service in the band 26.1–26.175 MHz. Frequencies within the band 26.1–26.175 MHz may also be assigned for use by low power auxiliary stations.

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US32 Except for the frequencies 123.3 and 123.5 MHz, which are not authorized for Federal use, the band 123.1125–123.5875 MHz is available for FAA communications incident to flight test and inspection activities pertinent to aircraft and facility certification on a secondary basis.

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US41 In the band 2450–2500 MHz, the Federal radiolocation service is permitted on condition that harmful interference is not caused to non-Federal services.

US44 In the band 2900–3100 MHz, the non-Federal radiolocation service may be authorized on the condition that no harmful interference is caused to Federal services.

US48 In the band 9000–9200 MHz, the use of the radiolocation service by non-Federal licensees may be authorized on the condition that harmful interference is not caused to the aeronautical radionavigation service or to the Federal radiolocation service.

US49 In the band 5460–5470 MHz, the non-Federal radiolocation service may be authorized on the condition that it does not cause harmful interference to the aeronautical or maritime radionavigation services or to the Federal radiolocation service.

US50 In the band 5470–5650 MHz, the radiolocation service may be authorized for non-Federal use on the condition that harmful interference is not caused to the maritime radionavigation service or to the Federal radiolocation service.

US51 In the band 9300–9500 MHz, the radiolocation service may be authorized for non-Federal use on the condition that harmful interference is not caused to the Federal radiolocation service.

US53 In view of the fact that the band 13.25–13.4 GHz is allocated to doppler navigation aids, Federal and non-Federal airborne doppler radars in the aeronautical radionavigation service are permitted in the band 8750–8850 MHz only on the condition that they must accept any interference that may be experienced from stations in the radiolocation service in the band 8500–10000 MHz.

US58 In the band 10–10.5 GHz, pulsed emissions are prohibited, except for weather radars on board meteorological satellites in the band 10–10.025 GHz. The amateur service and the non-Federal radiolocation service, which shall not cause harmful interference to the Federal radiolocation service, are the only non-Federal services permitted in this band. The non-Federal radiolocation service is limited to survey operations as specified in footnote US108.

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US74 In the bands 25.55–25.67, 73.0–74.6, 406.1–410.0, 608–614, 1400–1427 (see US368), 1660.5–1670.0, 2690–2700, and 4990–5000 MHz, and in the bands 10.68–10.7, 15.35–15.4, 23.6–24.0, 31.3–31.5, 86–92, 100–102, 109.5–111.8, 114.25–116, 148.5–151.5, 164–167, 200–209, and 250–252 GHz, the radio astronomy service shall be protected from unwanted emissions only to the extent that such radiation exceeds the level which would be present if the offending station were operating in compliance with the technical standards or criteria applicable to the service in which it operates. Radio astronomy observations in these bands are performed at the locations listed in US311.

US77 Federal stations may also be authorized: (a) Port operations use on a simplex basis by coast and ship stations of the frequencies 156.6 and 156.7 MHz; (b) Duplex port operations use of the frequency 157.0 MHz for ship stations and 161.6 MHz for coast stations; (c) Inter-ship use of 156.3 MHz on a simplex basis; and (d) Vessel traffic services under the control of the U.S. Coast Guard on a simplex basis by coast

[3] *Note by the Secretariat:* This Resolution was revised by WRC–03.

and ship stations on the frequencies 156.25, 156.55, 156.6 and 156.7 MHz. (e) Navigational bridge-to-bridge and navigational communications on a simplex basis by coast and ship stations on the frequencies 156.375 and 156.65 MHz

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US80 Federal stations may use the frequency 122.9 MHz subject to the following conditions: (a) All operations by Federal stations shall be restricted to the purpose for which the frequency is authorized to non-Federal stations, and shall be in accordance with the appropriate provisions of the Commission's Rules and Regulations, Part 87, Aviation Services; (b) Use of the frequency is required for coordination of activities with Commission licensees operating on this frequency; and (c) Federal stations will not be authorized for operation at fixed locations.

US81 The band 38.0–38.25 MHz is used by both Federal and non-Federal radio astronomy observatories. No new fixed or mobile assignments are to be made and Federal stations in the band 38.0–38.25 MHz will be moved to other bands on a case-by-case basis, as required, to protect radio astronomy observations from harmful interference. As an exception, however, low powered military transportable and mobile stations used for tactical and training purposes will continue to use the band. To the extent practicable, the latter operations will be adjusted to relieve such interference as may be caused to radio astronomy observations. In the event of harmful interference from such local operations, radio astronomy observatories may contact local military commands directly, with a view to effecting relief. A list of military commands, areas of coordination, and points of contact for purposes of relieving interference may be obtained upon request from the Office of Engineering and Technology, Federal Communications Commission, Washington, D.C. 20554.

US82 In the bands 4146–4152 kHz, 6224–6233 kHz, 8294–8300 kHz, 12353–12368 kHz, 16528–16549 kHz, 18825–18846 kHz, 22159–22180 kHz, and 25100–25121 kHz, the assignable frequencies may be authorized on a shared non-priority basis to Federal and non-Federal ship and coast stations (SSB telephony, with peak envelope power not to exceed 1 kW).

US87 The band 449.75–450.25 MHz may be used by Federal and non-Federal stations for space telecommand (Earth-to-space) at specific locations, subject to such conditions as may be applied on a case-by-case basis. Operators shall take all practical steps to keep the carrier frequency close to 450 MHz.

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US104 In the band 90–110 kHz, the LORAN radionavigation system has priority in the United States and its insular areas. Radiolocation land stations making use of LORAN type equipment may be authorized to both Federal and non-Federal licensees on a secondary basis for offshore radiolocation activities only at specific locations and subject to such technical and operational conditions (*e.g.*, power, emission, pulse rate and phase code, hours of operation), including on-the-air testing, as may be required on a case-by-case basis to ensure protection of the LORAN radionavigation system from harmful interference and to ensure mutual compatibility among radiolocation operators. Such authorizations to stations in the radiolocation service are further subject to showing of need for service which is not currently provided and which the Federal Government is not yet prepared to render by way of the radionavigation service.

US106 The frequency 156.75 MHz is available for assignment to Federal and non-Federal stations for environmental communications in accordance with an agreed plan.

US107 The frequency 156.8 MHz is the national distress, safety and calling frequency for the maritime mobile VHF radiotelephone service for use by Federal and non-Federal ship and coast stations. Guard bands of 156.7625–156.7875 and 156.8125–156.8375 MHz are maintained.

US108 In the bands 3300–3500 MHz and 10–10.5 GHz, survey operations, using transmitters with a peak power not to exceed five watts into the antenna, may be authorized for Federal and non-Federal use on a secondary basis to other Federal radiolocation operations.

US110 In the band 9200–9300 MHz, the use of the radiolocation service by non-Federal licensees may be authorized on the condition that harmful interference is not caused to the maritime radionavigation service or to the Federal radiolocation service.

US112 The frequency 123.1 MHz is for search and rescue communications. This frequency may be assigned for air traffic control communications at special aeronautical events on the condition that no harmful interference is caused to search and rescue communications during any period of search and rescue operations in the locale involved.

US116 In the bands 890–902 MHz and 935–941 MHz, no new assignments are to be made to Federal radio stations after July 10, 1970 except on case-by-case basis, to experimental stations and to additional stations of existing networks in Alaska. Federal assignments existing prior to July 10 1970 to stations in Alaska may be continued. All other existing Federal assignments shall be on a secondary basis to stations in the non-Federal land mobile service and shall be subject to adjustment or removal from the bands 890–902 MHz, 928–932 MHz and 935–941 MHz at the request of the FCC.

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US209 The use of frequencies 460.6625, 460.6875, 460.7125, 460.7375, 460.7625, 460.7875, 460.8125, 460.8375, 460.8625, 465.6625, 465.6875, 465.7125, 465.7375, 465.7625, 465.7875, 465.8125, 465.8375, and 465.8625 MHz may be authorized, with 100 mW or less output power, to Federal and non-Federal radio stations for one-way, non-voice bio-medical telemetry operations in hospitals, or medical or convalescent centers.

US210 In the bands 40.66–40.7 MHz and 216–220 MHz, frequencies may be authorized to Federal and non-Federal stations on a secondary basis for the tracking of, and telemetering of scientific data from, ocean buoys and wildlife. Operation in these bands is subject to the technical standards specified in Section 8.2.42 of the NTIA Manual for Federal use, or 47 CFR 90.248 for non-Federal use. After January 1, 2002, no new assignments shall be authorized in the band 216–217 MHz.

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US217 In the band 420–450 MHz, pulse-ranging radiolocation systems may be authorized for Federal and non-Federal use along the shorelines of the contiguous 48 States and Alaska. In the sub-band 420–435 MHz, spread spectrum radiolocation systems may be authorized for Federal and non-Federal use within the contiguous 48 States and Alaska. All stations operating in accordance with this provision shall be secondary to stations operating in accordance with the Table of Frequency Allocations. Authorizations shall be granted on a case-by-case basis; however, operations proposed to be located within the following geographic areas should not expect to be accommodated:

(a) In Arizona, Florida (including the Key West area), and New Mexico.

(b) In those portions of California and Nevada that is south of latitude 37°10′ North.

(c) In that portion of Texas that is west of longitude 104°00′ West.

(d) Within 322 kilometers (200 miles) of: (1) Eglin AFB, FL (30°30′ N, 86°30′ W); (2) Patrick AFB, FL (28°21′ N, 80°43′ W); and (3) Pacific Missile Test Center, Point Mugu, CA (34°09′ N, 119°11′ W).

(e) Within 240 kilometers (150 miles) of Beale AFB, CA (39°08′ N, 121°26′ W).

(f) Within 200 kilometers (124 miles) of: (1) Goodfellow AFB, TX (31°25′ N, 100°24′ W); and (2) Warner Robins AFB, GA (32°38′ N, 83°35′ W).

(g) Within 160 kilometers (100 miles) of: (1) Clear, AK (64°17′ N, 149°10′ W); (2) Concrete, ND (48°43′ N, 97°54′ W); and (3) Otis AFB, MA (41°45′ N, 70°32′ W).

US218 The band 902–928 MHz is available for Location and Monitoring Service (LMS) systems subject to not causing harmful interference to the operation of all Federal stations authorized in this band. These systems must tolerate interference from the operation of industrial, scientific, and medical (ISM) equipment and the operation of Federal stations authorized in this band.

US220 The frequencies 36.25 and 41.71 MHz may be authorized to Federal stations and non-Federal stations in the petroleum radio service, for oil spill containment and cleanup operations. The use of these frequencies for oil spill containment or cleanup operations is limited to the inland and coastal waterway regions.

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US224 Federal systems utilizing spread spectrum techniques for terrestrial communication, navigation and identification may be authorized to operate in the band 960–1215 MHz on the condition that harmful interference will not be caused to the aeronautical radionavigation service. These systems will be handled on a case-by-case basis. Such systems shall be subject to a review at the national level for operational requirements and electromagnetic compatibility prior to development, procurement or modification.

US225 In addition to its present Federal use, the band 510–525 kHz is available to Federal and non-Federal aeronautical radionavigation stations inland of the Territorial Base Line as coordinated with the military services. In addition, the frequency 510 kHz is available for non-Federal ship-helicopter operations when beyond 100 nautical miles from shore and required for aeronautical radionavigation.

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US229 Federal use of the fixed and land mobile services in the band 216–220 MHz and of the aeronautical mobile service in the band 217–220 MHz shall be limited to telemetering and associated telecommand operations. After January 1, 2002, no new Federal assignments shall be authorized in the band 216–217 MHz. The sub-band 216.88–217.08 MHz is allocated to the radiodetermination service on a primary basis for Federal use, limited to the Navy's Space Surveillance (SPASUR) radar system at the following nine sites (Coordinate datum: NAD83).

(a) Three stations transmit at a very high power and other operations may be affected within the following areas:

Transmitter sites	Coordinates	Frequency	Interference radius
Gila River (Phoenix), AZ	33°06′32″ N, 112°01′45″ W	216.97 MHz	150 km (93.2 miles).
Lake Kickapoo (Archer City), TX	33°32′47″ N, 98°45′46″ W	216.983 MHz	250 km (155.3 miles).
Jordan Lake (Wetumpka), AL	32°39′33″ N, 86°15′52″ W	216.99 MHz	150 km.

(b) Reception of the sub-band 216.965–216.995 MHz shall be protected from harmful interference within 50 kilometers (31.1 miles) of the following sites:

Receive sites	Coordinates
Elephant Butte, NM	33°26′35″ N, 106°59′50″ W.
Fort Stewart, GA	31°58′36″ N, 081°30′34″ W.
Hawkinsville, GA	32°17′20″ N, 083°32′10″ W.
Red River, AR	33°19′48″ N, 093°33′01″ W.
San Diego, CA	32°34′42″ N, 116°58′11″ W.
Silver Lake, MS	33°08′42″ N, 091°01′16″ W.

US230 The bands 422.1875–425.4875 MHz and 427.1875–429.9875 MHz are allocated to the land mobile service on a primary basis for non-Federal use within 80.5 kilometers (50 miles) of Cleveland, OH (41°29′51.2″ N, 81°41′49.5″ W) and Detroit, MI (42°19′48.1″ N, 83°02′56.7″ W). The bands 423.8125–425.4875 MHz and 428.8125–429.9875 MHz are allocated to the land mobile service on a primary basis for non-Federal use within 80.5 kilometers of Buffalo, NY (42°52′52.2″ N, 78°52′20.1″ W). Coordinate datum: NAD83.

US231 When an assignment cannot be obtained in the bands between 200 kHz and 525 kHz, which are allocated to aeronautical radionavigation, assignments may be made to aeronautical radiobeacons in the maritime mobile band 435–490 kHz, on a secondary basis, subject to the coordination and agreement of those agencies having assignments within the maritime mobile band which may be affected. Assignments to Federal aeronautical radionavigation radiobeacons in the band 435–490 kHz shall not be a bar to any required changes to the maritime mobile radio service and shall be limited to non-voice emissions.

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US240 The bands 1715–1725 and 1740–1750 kHz are allocated on a primary basis and the bands 1705–1715 kHz and 1725–1740 kHz on a secondary basis to the aeronautical radionavigation service (radiobeacons).

US244 The band 136–137 MHz is allocated to the non-Federal aeronautical mobile (R) service on a primary basis, and is subject to pertinent international treaties and agreements. The frequencies 136, 136.025, 136.05, 136.075, 136.1, 136.125, 136.15, 136.175, 136.2, 136.225, 136.25, 136.275, 136.3, 136.325, 136.35, 136.375, 136.4, 136.425, 136.45, and 136.475 MHz are available on a shared basis to the Federal Aviation Administration for air traffic control purposes, such as automatic weather observation stations (AWOS), automatic terminal information services (ATIS), flight

information services-broadcast (FIS-B), and airport control tower communications.

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US252 The band 2110–2120 MHz is also allocated to the space research service (deep space) (Earth-to-space) on a primary basis at Goldstone, California.

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US258 In the bands 8025–8400 MHz and 25.5–27 GHz, the Earth exploration-satellite service (space-to-Earth) is allocated on a primary basis for non-Federal use. Authorizations are subject to a case-by-case electromagnetic compatibility analysis.

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US262 The band 7145–7190 MHz is also allocated to the space research service (deep space) (Earth-to-space) on a secondary basis for non-Federal use. The use of the bands 7145–7190 MHz and 34.2–34.7 GHz by the space research service (deep space) (Earth-to-space) and of the band 31.8–32.3 GHz by the space research service (deep space) (space-to-Earth) is limited to Goldstone, California.

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US266 Non-Federal licensees in the Public Safety Radio Pool holding a valid authorization on June 30, 1958, to operate in the frequency band 156.27–157.45 MHz or on the frequencies 161.85 MHz or 161.91 MHz may, upon proper application, continue to be authorized for such operation, including expansion of existing systems, until such time as harmful interference is caused to the operation of any authorized station other than those licensed in the Public Safety Radio Pool.

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US268 The bands 890–902 MHz and 928–942 MHz are also allocated to the radiolocation service for Federal ship stations (off-shore ocean areas) on the condition that harmful interference is not caused to non-Federal land mobile stations. The provisions of footnote US116 apply.

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US275 The band 902–928 MHz is allocated on a secondary basis to the amateur service subject to not causing harmful interference to the operations of Federal stations authorized in this band or to Location and Monitoring Service (LMS) systems. Stations in the amateur service must tolerate any interference from the operations of industrial, scientific, and medical (ISM) devices, LMS systems, and the operations of Federal stations authorized in this band. Further, the amateur service is prohibited in those portions of Texas and New Mexico bounded on the south by latitude 31°41′ North, on the east by longitude 104°11′ West, and on the north by latitude 34°30′ North, and on the west by longitude 107°30′West; in addition, outside this area but within 150 miles of these boundaries of White Sands Missile Range the service is restricted to a maximum transmitter peak envelope power output of 50 watts.

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US281 In the band 25070–25210 kHz, non-Federal stations in the Industrial/Business Pool shall not cause harmful interference to, and must accept interference from, stations in the maritime mobile service operating in accordance with the Table of Frequency Allocations.

US282 In the band 4650–4700 kHz, frequencies may be authorized for non-Federal communication with helicopters in support of off-shore drilling operations on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

US283 In the bands 2850–3025 kHz, 3400–3500 kHz, 4650–4700 kHz, 5450–5680 kHz, 6525–6685 kHz, 10005–10100 kHz, 11275–11400 kHz, 13260–13360 kHz, and 17900–17970 kHz, frequencies may be authorized for non-Federal flight test purposes on the condition that harmful interference will not be caused to services operating in accordance with the Table of Frequency Allocations.

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US296 In the bands designated for ship wide-band telegraphy, facsimile and special transmission systems, the following assignable frequencies are available to non-Federal stations on a shared basis with Federal stations: 2070.5 kHz, 2072.5 kHz, 2074.5 kHz, 2076.5 kHz, 4154 kHz, 4170 kHz, 6235 kHz, 6259 kHz, 8302 kHz, 8338 kHz, 12370 kHz, 12418 kHz, 16551 kHz, 16615 kHz, 18848 kHz, 18868 kHz, 22182 kHz, 22238 kHz, 25123 kHz, and 25159 kHz.

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US298 Channels 27555 kHz, 27615 kHz, 27635 kHz, 27655 kHz, 27765 kHz, and 27860 kHz are available for use by forest product licensees on a secondary basis to Federal operations including experimental stations. Non-Federal operations on these channels 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).

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US300 The frequencies 169.445, 169.505, 170.245, 170.305, 171.045, 171.105, 171.845 and 171.905 MHz are available for wireless microphone operations on a secondary basis to Federal and non-Federal operations.

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US303 In the band 2285–2290 MHz, non-Federal space stations in the space research, space operations and Earth exploration-satellite services may be authorized to transmit to the Tracking and Data Relay Satellite System subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to authorized Federal stations. The power flux-density at the Earth's surface from such non-Federal stations shall not exceed–144 to –154 dBW/m2/4 kHz, depending on angle of arrival, in accordance with ITU Radio Regulation 21.16.

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US310 In the band 14.896–15.121 GHz, non-Federal space stations in the space research service may be authorized on a secondary basis to transmit to Tracking and Data Relay Satellites subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to authorized Federal stations. The power flux-density produced by such non-Federal stations at the Earth's surface in any 1 MHz band for all conditions and methods of modulation shall not exceed:

-124 dB(W/m^2)	for $0° < \theta \leq 5°$.
$-124 + (\theta - 5)/2$dB(W/m^2)	for $5° < \theta \leq 25°$.
-114 dB(W/m^2)	for $25° < \theta \leq 90°$.

where θ is the angle of arrival of the radio-frequency wave (degrees above the horizontal). These limits relate to the power flux-density and angles of arrival which would be obtained under free-space propagation conditions.

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US316 The band 2900–3000 MHz is also allocated on a primary basis to the meteorological aids service. Operations in this service are limited to Federal Next Generation Weather Radar (NEXRAD) systems where accommodation in the 2700–2900 MHz

band is not technically practical and are subject to coordination with existing authorized stations.

US319 In the bands 137–138 MHz, 148–149.9 MHz, 149.9–150.05 MHz, 399.9–400.05 MHz, 400.15–401 MHz, 1610–1626.5 MHz, and 2483.5–2500 MHz, Federal stations in the mobile-satellite service shall be limited to earth stations operating with non-Federal space stations.

US320 The use of the bands 137–138 MHz, 148–150.05 MHz, 399.9–400.05 MHz, and 400.15–401 MHz by the mobile-satellite service is limited to non-voice, non-geostationary satellite systems and may include satellite links between land earth stations at fixed locations.

US321 The band 535–1705 kHz is also allocated to the non-Federal mobile service on a secondary basis for the distribution of public service information from Travelers' Information Stations operating in accordance with the provisions of 47 CFR 90.242 on 10 kilohertz spaced channels from 540 kHz to 1700 kHz.

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US324 Federal and non-Federal satellite systems in the 400.15–401 MHz band shall be subject to electromagnetic compatibility analysis and coordination.

US325 In the band 148–149.9 MHz fixed and mobile stations shall not claim protection from land earth stations in the mobile-satellite service that have been previously coordinated; Federal fixed and mobile stations exceeding 27 dBW EIRP, or an emission bandwidth greater than 38 kHz, will be coordinated with existing mobile-satellite service space stations.

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US334 In the band 17.8–20.2 GHz, Federal space stations in both geostationary (GSO) and non-geostationary satellite orbits (NGSO) and associated earth stations in the fixed-satellite service (space-to-Earth) may be authorized on a primary basis. For a Federal geostationary satellite network to operate on a primary basis, the space station shall be located outside the arc, measured from east to west, 70 West Longitude to 120 West Longitude. Coordination between Federal fixed-satellite systems and non-Federal space and terrestrial systems operating in accordance with the United States Table of Frequency Allocations is required.

(a) In the sub-band 17.8–19.7 GHz, the power flux-density at the surface of the Earth produced by emissions from a Federal GSO space station or from a Federal space station in a NGSO constellation of 50 or fewer satellites, for all conditions and for all methods of modulation, shall not exceed the following values in any 1 MHz band:

(1) –115 dB(W/m²) for angles of arrival above the horizontal plane () between 0° and 5°,

(2) –115 + 0.5(—5) dB(W/m²) for δ between 5° and 25°, and

(3) –105 dB(W/m²) for δ between 25° and 90°.

(b) In the sub-band 17.8–19.3 GHz, the power flux-density at the surface of the Earth produced by emissions from a Federal space station in an NGSO constellation of 51 or more satellites, for all conditions and for all methods of modulation, shall not exceed the following values in any 1 MHz band:

(1) –115—X dB(W/m²) for δ between 0° and 5°,

(2) –115—X + ((10 + X)/20)(δ—5) dB(W/m²) for δ between 5° and 25°, and

(3) –105 dB(W/m²) for δ between 25° and 90°; where X is defined as a function of the number of satellites, n, in an NGSO constellation as follows:

For n ≤ 288, X = (5/119) (n—50) dB; and

For n > 288, X = (1/69) (n + 402) dB.

US335 The primary Federal and non-Federal allocations for the various segments of the 220–222 MHz band are divided as follows:

(1) The 220.0–220.55/221.0–221.55, 220.6–220.8/221.6–221.8, 220.85–220.90/221.85–221.90 and 220.925–221.0/221.925–222.0 MHz bands (Channels 1–110, 121–160, 171–180 and 186–200, respectively) are available for exclusive non-Federal use;

(2) The 220.55–220.60/221.55–221.60 MHz bands (Channels 111–120) are available for exclusive Federal use; and

(3) The 220.80–220.85/221.80–221.85 and 220.900–220.925/221.900–221.925 MHz bands (Channels 161–170 and 181–185, respectively) are available for shared Federal and non-Federal use. The exclusive non-Federal band segments are also available for temporary fixed geophysical telemetry operations on a secondary basis to the fixed and mobile services.

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US339 The bands 2310–2320 and 2345–2360 MHz are also available for aeronautical telemetering and associated telecommand operations for flight testing of manned or unmanned aircraft, missiles or major components thereof on a secondary basis to the Wireless Communications Service. The following two frequencies are shared on a co-equal basis by Federal and non-Federal stations for telemetering and associated telecommand operations of expendable and re-usable launch vehicles whether or not such operations involve flight testing: 2312.5 and 2352.5 MHz. Other mobile telemetering uses may be provided on a non-interference basis to the above uses. The broadcasting-satellite service (sound) during implementation should also take cognizance of the expendable and reusable launch vehicle frequencies 2312.5 and 2352.5 MHz, to minimize the impact on this mobile service use to the extent possible.

US340 The band 2–30 MHz is available on a non-interference basis to Federal and non-Federal maritime and aeronautical stations for the purposes of measuring the quality of reception on radio channels. See 47 CFR 87.149 for the list of protected frequencies and bands within this frequency range. Actual communications shall be limited to those frequencies specifically allocated to the maritime mobile and aeronautical mobile services.

US342 In making assignments to stations of other services to which the bands:

13360–13410 kHz	22.01–22.21 GHz*	111.8–114.25 GHz
25550–25670 kHz	22.21–22.5 GHz	128.33–128.59 GHz*
37.5–38.25 MHz	22.81–22.86 GHz*	129.23–129.49 GHz*
322–328.6 MHz*	23.07–23.12 GHz*	130–134 GHz
1330–1400 MHz*	31.2–31.3 GHz	136–148.5 GHz
1610.6–1613.8 MHz*	36.43–36.5 GHz*	151.5–158.5 GHz
1660–1660.5 MHz*	42.5–43.5 GHz	168.59–168.93 GHz*
1668.4–1670 MHz*	42.77–43.17 GHz*	171.11–171.45 GHz*
3260–3267 MHz*	43.07–43.17 GHz*	172.31–172.65 GHz*
3332–3339 MHz*	43.37–43.47 GHz*	173.52–173.85 GHz*
3345.8–3352.5 MHz*	48.94–49.04 GHz*	195.75–196.15 GHz*
4825–4835 MHz*	76–86 GHz	209–226 GHz
4950–4990 MHz	92–94 GHz	241–250 GHz
6650–6675.2 MHz*	94.1–100 GHz	252–275 GHz

14.47–14.5 GHz*	102–109.5 GHz

are allocated (*indicates radio astronomy use for spectral line observations), all practicable steps shall be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. 4.5 and 4.6 and Article 29 of the ITU *Radio Regulations*).

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US344 In the band 5091–5250 MHz, non-Federal earth stations in the fixed-satellite service (Earth-to-space) shall be coordinated through the Frequency Assignment Subcommittee (see Recommendation ITU–R S.1342). In order to better protect the operation of the international standard system (microwave landing system) in the band 5000–5091 MHz, non-Federal tracking and telecommand operations should be conducted in the band 5150–5250 MHz.

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US347 In the band 2025–2110 MHz, non-Federal Earth-to-space and space-to-space transmissions may be authorized in the space research and Earth exploration-satellite services subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to Federal and non-Federal stations operating in accordance with the Table of Frequency Allocations.

US348 The band 3650–3700 MHz is also allocated to the Federal radiolocation service on a primary basis at the following sites: St. Inigoes, MD (38° 10′ N, 76° 23′ W); Pascagoula, MS (30° 22′ N, 88° 29′ W); and Pensacola, FL (30° 21′ 28″ N, 87° 16′ 26″ W). All fixed and fixed satellite operations within 80 kilometers of these sites shall be coordinated through the Frequency Assignment Subcommittee of the Interdepartmental Radio Advisory Committee on a case-by-case basis.

US349 The band 3650–3700 MHz is also allocated to the Federal radiolocation service on a non-interference basis for use by ship stations located at least 44 nautical miles in off-shore ocean areas on the condition that harmful interference is not caused to non-Federal operations.

US350 In the band 1427–1432 MHz, Federal use of the land mobile service and non-Federal use of the fixed and land mobile services is limited to telemetry and telecommand operations as described further:

(a) *Medical operations.* The use of the band 1427–1432 MHz for medical telemetry and telecommand operations (medical operations) shall be authorized for both Federal and non-Federal stations.

(1) Medical operations shall be authorized on a primary basis in the band 1427–1429.5 MHz and on a secondary basis in the band 1429.5–1432 MHz in the United States and its insular areas, except in the following locations: Austin/Georgetown, TX; Detroit and Battle Creek, MI; Pittsburgh, PA; Richmond/Norfolk, VA; Spokane, WA; and Washington, DC metropolitan area (collectively, the ''carved-out'' locations). See 47 CFR 90.259(b)(4) and 95.630(b) for a detailed description of these locations.

(2) In the carved-out locations, medical operations shall be authorized on a primary basis in the band 1429–1431.5 MHz and on a secondary basis in the bands 1427–1429 MHz and 1431.5–1432 MHz.

(b) *Non-medical operations.* The use of the band 1427–1432 MHz for non-medical telemetry and telecommand operations (non-medical operations) shall be limited to non-Federal stations.

(1) Non-medical operations shall be authorized on a secondary basis to the Wireless Medical Telemetry Service (WMTS) in the band 1427–1429.5 MHz and on a primary basis in the band 1429.5–1432 MHz in the United States and its insular areas, except in the carved-out locations.

(2) In the carved-out locations, non-medical operations shall be authorized on a secondary basis in the band 1429–1431.5 MHz and on a primary basis in the bands 1427–1429 MHz and 1431.5–1432 MHz.

US351 In the band 1390–1400 MHz, Federal operations, except for medical telemetry operations in the sub-band 1395–1400 MHz, are on a non-interference basis to authorized non-Federal operations and shall not hinder implementation of any non-Federal operations. However, Federal operations authorized as of March 22, 1995 at 17 sites identified below will be continued on a fully protected basis until January 1, 2009.

Sites	Lat/long	Radius (Km)	Sites	Lat/long	Radius (Km)
Eglin AFB, FL	30°28′ N/086°31′ W	80	Ft. Greely, AK	63°47′ N/145°52′ W	80
Dugway PG, UT	40°11′ N/112°53′ W	80	Ft. Rucker, AL	31°13′ N/085°49′ W	80
China Lake, CA	35°41′ N/117°41′ W	80	Redstone, AL	34°35′ N/086°35′ W	80
Ft. Huachuca, AZ	31°33′ N/110°18′ W	80	Utah Test Range, UT	40°57′ N/113°05′ W	80
Cherry Point, NC	34°57′ N/076°56′ W	80	WSM Range, NM	32°10′ N/106°21′ W	80
Patuxent River, MD	38°17′ N/076°25′ W	80	Holloman AFB, NM	33°29′ N/106°50′ W	80
Aberdeen PG, MD	39°29′ N/076°08′ W	80	Yuma, AZ	32°29′ N/114°20′ W	80
Wright-Patterson AFB, OH	39°50′ N/084°03′ W	80	Pacific Missile Range, CA	34°07′ N/119°30′ W	80
Edwards AFB, CA	34°54′ N/117°53′ W	80			

US352 In the band 1427–1432 MHz, Federal operations, except for medical telemetry and medical telecommand operations, are on a non-interference basis to authorized non-Federal operations and shall not hinder the implementation of any non-Federal operations.

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US359 In the band 15.43–15.63 GHz, use of the fixed-satellite service (Earth-to-space) is limited to non-Federal feeder links of non-geostationary systems in the mobile-satellite service. These non-Federal earth stations shall be coordinated through the Frequency Assignment Subcommittee (see Annex 3 of Recommendation ITU–R S.1340).

US360 In the band 33–36 GHz, the Federal fixed-satellite service (space-to-Earth) is also allocated on a primary basis. Coordination between Federal fixed-satellite service systems and non-Federal systems operating in accordance with the United States Table of Frequency Allocations is required.

US361 In the band 1432–1435 MHz, Federal stations in the fixed and mobile services may operate indefinitely on a primary basis at the 23 sites listed below. All other Federal stations in the

fixed and mobile services shall operate in the band 1432–1435 MHz on a primary basis until reaccommodated in accordance with the National Defense Authorization Act of 1999.

Location	North latitude/ west longitude	Operating radius (Km)	Location	North latitude/ west longitude	Operating radius (Km)
China Lake/Edwards AFB, CA	35°29′/117°16′	100	AUTEC	24°30′/078°00′	80
White Sands Missile Range/Holloman AFB, NM	32°11′/106°20′	160	Beaufort MCAS, SC	32°26′/080°40′	160
Utah Test and Training Range/Dugway Proving Ground, Hill AFB, UT.	40°57′/113°05′	160	MCAS Cherry Point, NC	34°54′/076°53′	100
Patuxent River, MD	38°17′/076°24′	70	NAS Cecil Field, FL	30°13′/081°52′	160
Nellis AFB, NV	37°29′/114°14′	130	CNAS Fallon, NV	39°30′/118°46′	100
Fort Huachuca, AZ	31°33′/110°18′	80	NAS Oceana, VA	36°49′/076°01′	100
Eglin AFB/Gulfport ANG	30°28′/086°31′	140	NAS Whidbey	48°21′/122°39′	70
Range, MS/Fort Rucker, AL			Island, WA.		
Yuma Proving Ground, AZ	32°29′/114°20′	160	NCTAMS, GUM	13°35′/ 144°51′(East).	80
Fort Greeley, AK	63°47′/145°52′	80	Lemoore, CA	36°20′/119°57′	120
Redstone Arsenal, AL	34°35′/086°35′	80	Savannah River, SC	33°15′/081°39′	3
Alpene Range, MI	44°23′/083°20′	80			
Camp Shelby, MS	31°20′/089°18′	80	Naval Space Operations Center, ME.	44°24′/068°01′	80

US362 The band 1670–1675 MHz is allocated to the meteorological-satellite service (space-to-Earth) on a primary basis for Federal use. Earth station use of this allocation is limited to Wallops Island, VA (37°56′47″ N, 75°27′37″ W), Fairbanks, AK (64°58′36″ N, 147°31′03″; W), and Greenbelt, MD (39°00′02″ N, 76°50′31″ W). Applicants for non-Federal stations within 100 kilometers of the Wallops Island or Fairbanks coordinates and within 65 kilometers of the Greenbelt coordinates shall notify NOAA in accordance with the procedures specified in 47 CFR 1.924.

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US366 On March 25, 2007, the bands 5900–5950 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz, and 18900–19020 are allocated exclusively to the broadcasting service.

(a) As of March 25, 2007, authority to operate new Federal stations in the fixed service may be extended in all of the previously listed frequency bands and authority to operate new Federal stations in the mobile except aeronautical mobile service may be extended in the bands 5900–5950 kHz, 13570–13600 kHz, and 13800–13870 kHz. As of March 25, 2007, all Federal stations 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.*

(b) As of March 25, 2007, authority to operate new non-Federal stations in the fixed and mobile except aeronautical mobile services shall not be extended in any of the above listed frequency bands. As of March 25, 2007, non-Federal stations in the:

(1) Fixed service may continue to use the bands 5900–5950 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13800–13870 kHz, and 15600–15800 kHz; and

(2) Mobile except aeronautical mobile service may continue to use the band 5900–5950 kHz. As of March 25, 2007, non-Federal stations shall:

(i) Be limited to communications only within the United States and its insular areas;

(ii) Not cause harmful interference to the broadcasting service;

(iii) Be limited to the minimum power needed to achieve communications; and

(iv) Take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations.*

US367 On the condition that harmful interference is not caused to the broadcasting service, frequencies in the bands 9775–9900 kHz, 11650–11700 kHz, and 11975–12050 kHz may be used by Federal stations in the fixed service communicating within the United States and its insular areas that are authorized as of June 12, 2003. Each such station shall be limited to a total radiated power of 24 dBW.

US368 The use of the bands 1390–1392 MHz and 1430–1432 MHz by the fixed-satellite service is limited to feeder links for the Non-Voice Non-Geostationary Mobile-Satellite Service and is contingent on:

(1) The completion of ITU–R studies on all identified compatibility issues as shown in Annex 1 of Resolution 745 (WRC–2003);

(2) Measurement of emissions from equipment that would be employed in operational systems and demonstrations to validate the studies as called for in Resolution 745 (WRC–2003); and

(3) Compliance with any technical and operational requirements that may be imposed at WRC–07 to protect other services in these bands and passive services in the band 1400–1427 MHz from unwanted emissions.

The FCC shall coordinate individual assignments with NTIA (see, for example, Recommendations ITU–R RA.769–2 and ITU–R SA.1029–2) to ensure the protection of passive services in the band 1400–1427 MHz. As part of the coordination requirements, the feeder uplink and downlink systems shall be tested and certified to be in conformance with the technical and operational out-of-band requirements for the protection of passive services in the band 1400–1427 MHz. Certification and all supporting documentation shall be submitted to the FCC at least three months prior to launch.

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US378 In the band 1710–1755 MHz, Federal stations in the fixed and mobile services shall operate on a primary basis until reaccommodated in accordance with the Commercial Spectrum Enhancement Act. Further, Federal stations may continue to operate in the band 1710–1755 MHz as provided herein:

(a) Federal fixed microwave and tactical radio relay stations may operate indefinitely on a primary basis at the sites listed herein:

Location	Coordinates	Radius of operation (km)
Cherry Point, NC	34°58′ N 076°56′ W	80
Yuma, AZ	32°32′ N 113°58′ W	80

(b) Federal fixed microwave and tactical radio relay stations may operate on a secondary basis, and shall not cause harmful inference to, and must accept harmful interference from, primary non-Federal operations at the sites listed below:

Location	Coordinates	Radius of operation (km)
China Lake, CA	35°41′ N 117°41′ W	80
Eglin AFB, FL	30°29′ N 086°31′ W	80
Pacific Missile Test Range/Point Mugu, CA	34°07′ N 119°30′ W	80
Nellis AFB, NV	36°14′ N 115°02′ W	80
Hill AFB, UT	41°07′ N 111°58′ W	80
Patuxent River, MD	38°17′ N 076°25′ W	80
White Sands Missile Range, NM	33°00′ N 106°30′ W	80
Fort Irwin, CA	35°16′ N 116°41′ W	50
Fort Rucker, AL	31°13′ N 085°49′ W	50
Fort Bragg, NC	35°09′ N 079°01′ W	50
Fort Campbell, KY	36°41′ N 087°28′ W	50
Fort Lewis, WA	47°05′ N 122°36′ W	50
Fort Benning, GA	32°22′ N 084°56′ W	50
Fort Stewart, GA	31°52′ N 081°37′ W	50

(c) In the sub-band 1710–1720 MHz, precision guided munitions shall operate on a primary basis until inventory is exhausted or until December 31, 2008, whichever is earlier.

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US380 In the bands 1525–1544 MHz, 1545–1559 MHz, 1610–1645.5 MHz, 1646.5–1660.5 MHz, 2000–2020 MHz, 2180–2200 MHz, and 2483.5–2500 MHz, a non-Federal licensee in the mobile-satellite service (MSS) may also operate an ancillary terrestrial component in conjunction with its MSS network, subject to the Commission's rules for ancillary terrestrial components and subject to all applicable conditions and provisions of its MSS authorization.

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US382 In the band 39.5–40 GHz, Federal earth stations in the mobile-satellite service (space-to-Earth) shall not claim protection from non-Federal stations in the fixed and mobile services. ITU Radio Regulation No. 5.43A does not apply.

US384 In the band 401–403 MHz, the non-Federal Earth exploration-satellite (Earth-to-space) and meteorological-satellite (Earth-to-space) services are limited to earth stations transmitting to Federal space stations.

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US389 In the bands 71–76 GHz and 81–86 GHz, stations in the fixed, mobile, and broadcasting services shall not cause harmful interference to, nor claim protection from, Federal stations in the fixed-satellite service at any of the following 28 military installations:

Military installation	State	Nearby city
Redstone Arsenal	AL	Huntsville
Fort Huachuca	AZ	Sierra Vista
Yuma Proving Ground	AZ	Yuma
Beale AFB	CA	Marysville
Camp Parks Reserve Forces Training Area	CA	Dublin
China Lake Naval Air Weapons Station	CA	Ridgecrest
Edwards AFB	CA	Rosamond
Fort Irwin	CA	Barstow
Marine Corps Air Ground Combat Center	CO	Twentynine Palms
Buckley AFB	GA	Aurora (Denver)
Schriever AFB	CO	Colorado Springs
Fort Gordon	GA	Augusta
Naval Satellite Operations Center	GU	Finegayan (Guam)
Naval Computer and Telecommunications Area Master Station, Pacific	HI	Wahiawa (Oahu Is.)
Fort Detrick	MD	Frederick
Nellis AFB	NV	Las Vegas
Nevada Test Site	NV	Amargosa Valley
Tonapah Test Range Airfield	NV	Tonapah
Cannon AFB	NM	Clovis
White Sands Missile Range	NM	White Sands
Dyess AFB	TX	Abilene

Military installation	State	Nearby city
Fort Bliss	TX	El Paso
Fort Sam Houston	TX	San Antonio
Goodfellow AFB	TX	San Angelo
Kelly AFB	TX	San Antonio
Utah Test and Training Range	UT	
Fort Belvoir	VA	Alexandria
Naval Satellite Operations Center	VA	Chesapeake

US390 Federal stations in the space research service (active) operating in the band 5350–5460 MHz shall not cause harmful interference to, nor claim protection from, Federal and non-Federal stations in the aeronautical radionavigation service nor Federal stations in the radiolocation service.

US391 In the band 2495–2500 MHz, the mobile-satellite service (space-to-Earth) shall not receive protection from non-Federal stations in the fixed and mobile except aeronautical mobile services operating in that band.

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US394 Until March 29, 2009, the band 6765–7000 kHz is allocated to the fixed service on a primary basis and to the mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis.

US395 Until March 29, 2009, the use of the band 7100–7200 kHz in Region 1 and Region 3 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

US396 The band 7300–7400 kHz is allocated exclusively to the broadcasting service in accordance with the schedule specified below, except that the sub-band 7368.5–7371.3 kHz is allocated to the fixed service on an exclusive basis for non-Federal use within the State of Alaska in accordance with 47 CFR 80.387.

(a) Until March 25, 2007, the band 7300–7350 kHz is allocated to the fixed service on a primary basis and to the mobile except aeronautical mobile service on a secondary basis for Federal and non-Federal use. After March 25, 2007, authority to operate in the band 7300–7350 kHz shall not be extended to new non-Federal stations in the fixed and mobile except aeronautical mobile services. After March 25, 2007, kHz), Federal and non-Federal stations in the fixed and mobile except aeronautical mobile services shall:

(1) Be limited to communications wholly 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*.

(b) Until March 29, 2009, the band 7350–7400 kHz is allocated to the fixed service on a primary basis and to the mobile except aeronautical mobile service on a secondary basis for Federal and non-Federal use. After March 29, 2009, authority to operate in the band 7350–7400 kHz shall not be extended to new non-Federal stations in the fixed and mobile except aeronautical mobile services. After March 29, 2009, Federal and non-Federal stations in the fixed and mobile except aeronautical mobile services shall:

(1) Be limited to communications wholly 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.*

US397 In the band 432–438 MHz, the Earth exploration-satellite service (active) is allocated on a secondary basis for Federal use. Stations in the Earth exploration-satellite service (active) shall not be operated within line-of-sight of United States except for the purpose of short duration pre-operational testing. Operations under this allocation shall not cause harmful interference to, nor claim protection from, any other services allocated in the band 432–438 MHz in the United States, including secondary services and the amateur-satellite service.

US398 In the bands 1390–1400 MHz and 1427–1432 MHz, airborne and space-to-Earth operations, except for feeder downlinks for the Non-Voice Non-Geostationary Mobile-Satellite Service in the band 1430–1432 MHz (see US368), are prohibited.

Non-Federal Government (NG) Footnotes

(These footnotes, each consisting of the letters ''NG'' followed by one or more digits, denote stipulations applicable only to non-Federal operations and thus appear solely in the non-Federal Table.)

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NG42 In the band 10–10.5 GHz, non-Federal stations in the radiolocation service shall not cause harmful interference to the amateur service.

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NG134 In the band 10.45–10.5 GHz, non-Federal stations in the radiolocation service shall not cause harmful interference to the amateur and amateur-satellite services.

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NG142 T V broadcast stations authorized to operate in the bands 54–72 MHz, 76–88 MHz, 174–216 MHz, 470–608 MHz, and 614–806 MHz may use a portion of the television vertical blanking interval for the transmission of telecommunications signals, on the condition that harmful interference will not be caused to the reception of primary services, and that such telecommunications services must accept any interference caused by primary services operating in these bands.

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NG152 The use of the band 219–220 MHz by the amateur service is limited to stations participating, as forwarding stations, in point-to-point fixed digital message forwarding systems, including intercity packet backbone networks.

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NG160 In the 5850–5925 MHz band, the use of the non-Federal mobile service is limited to Dedicated Short Range Communications operating in the Intelligent Transportation System radio service.

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NG169 After December 1, 2000, operations on a primary basis by the fixed-satellite service (space-to-Earth) in the band 3650–3700 MHz shall be limited to grandfathered earth stations. All other fixed-satellite service earth station operations in the band 3650–3700 MHz shall be on a secondary basis. Grandfathered earth stations are those authorized prior to December 1, 2000, or granted as a result of an application filed prior to December 1, 2000, and constructed within 12 months of initial

authorization. License applications for primary operations for new earth stations, major amendments to pending earth station applications, or applications for major modifications to earth station facilities filed on or after December 18, 1998, and prior to December 1, 2000, shall not be accepted unless the proposed facilities are within 16.1 kilometers (10 miles) of an authorized primary earth station operating in the band 3650–3700 MHz. License applications for primary operations by new earth stations, major amendments to pending earth station applications, and applications for major modifications to earth station facilities, filed after December 1, 2000, shall not be accepted, except for changes in polarization, antenna orientation or ownership of a grandfathered earth station.

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Federal Government (G) Footnotes

(These footnotes, each consisting of the letter ''G'' followed by one or more digits, denote stipulations applicable only to Federal operations and thus appear solely in the Federal Table.)

G2 In the bands 216–217 MHz, 220–225 MHz, 420–450 MHz (except as provided by US217 and G129), 890–902 MHz, 928–942 MHz, 1300–1390 MHz, 2310–2390 MHz, 2417–2450 MHz, 2700–2900 MHz, 5650–5925 MHz, and 9000–9200 MHz, the Federal radiolocation service is limited to the military services.

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G8 Low power Federal radio control operations are permitted in the band 420–450 MHz.

G11 Federal fixed and mobile radio services, including low power radio control operations, are permitted in the band 902–928 MHz on a secondary basis.

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G31 In the band 3300–3500 MHz, the use of the Federal radiolocation service is limited to the military services, except as provided by footnote US108.

G32 Except for weather radars on meteorological satellites in the band 9975–10025 MHz and for Federal survey operations (see footnote US108), Federal radiolocation in the band 10–10.5 GHz is limited to the military services.

* * * * *

G42 The space operation service (Earth-to-space) is limited to the band 1761–1842 MHz, and is limited to space command, control, range and range rate systems.

G56 Federal radiolocation in the bands 1215–1300, 2900–3100, 5350–5650 and 9300–9500 MHz is primarily for the military services; however, limited secondary use is permitted by other Federal agencies in support of experimentation and research programs. In addition, limited secondary use is permitted for survey operations in the band 2900–3100 MHz.

G59 In the bands 902–928 MHz, 3100–3300 MHz, 3500–3650 MHz, 5250–5350 MHz, 8500–9000 MHz, 9200–9300 MHz, 13.4–14.0 GHz, 15.7–17.7 GHz and 24.05–24.25 GHz, all Federal non-military radiolocation shall be secondary to military radiolocation, except in the sub-band 15.7–16.2 GHz airport surface detection equipment (ASDE) is permitted on a co-equal basis subject to coordination with the military departments.

* * * * *

G110 Federal ground-based stations in the aeronautical radionavigation service may be authorized between 3500–3650 MHz when accommodation in the band 2700–2900 MHz is not technically and/or economically feasible.

* * * * *

G117 In the bands 7.25–7.75 GHz, 7.9–8.4 GHz, 17.8–21.2 GHz, 30–31 GHz, 33–36 GHz, 39.5–41 GHz, 43.5–45.5 GHz and 50.4–51.4 GHz, the Federal fixed-satellite and mobile-satellite services are limited to military systems.

G118 Federal fixed stations may be authorized in the band 1700–1710 MHz only if spectrum is not available in the band 1755–1850 MHz.

* * * * *

G123 The bands 2300–2310 and 2400–2402 MHz were identified for reallocation, effective August 10, 1995, for exclusive non-Federal use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1995, any Federal operations in these bands are on a non-interference basis to authorized non-Federal operations and shall not hinder the implementation of any non-Federal operations.

G124 The band 2417–2450 MHz was identified for reallocation, effective August 10, 1995, for mixed Federal and non-Federal use under Title VI of the Omnibus Budget Reconciliation Act of 1993.

* * * * *

G129 Federal wind profilers are authorized to operate on a primary basis in the radiolocation service in the frequency band 448–450 MHz with an authorized bandwidth of no more than 2 MHz centered on 449 MHz, subject to the following conditions: (1) wind profiler locations must be pre-coordinated with the military services to protect fixed military radars; and (2) wind profiler operations shall not cause harmful interference to, nor claim protection from, military mobile radiolocation stations that are engaged in critical national defense operations.

G130 Federal stations in the radiolocation service operating in the band 5350–5470 MHz, shall not cause harmful interference to, nor claim protection from, Federal stations in the aeronautical radionavigation service operating in accordance with ITU Radio Regulation No. 5.449.

G131 Federal stations in the radiolocation service operating in the band 5470–5650 MHz, with the exception of ground-based radars used for meteorological purposes operating in the band 5600–5650 MHz, shall not cause harmful interference to, nor claim protection from, Federal stations in the maritime radionavigation service.

G132 Use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under ITU Radio Regulation No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215–1240 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. ITU Radio Regulation No. 5.43 shall not apply in respect of the radiolocation service. ITU Resolution 608 (WRC–03) shall apply.

G133 No emissions to deep space shall be effected in the band 7190–7235 MHz. Geostationary satellites in the space research service operating in the band 7190–7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

PART 25—SATELLITE COMMUNICATIONS

■ 10. The authority citation for part 25 continues to read as follows:

Authority: 47 U.S.C. 701–744. Interprets or applies Sections 4, 301, 302, 303, 307, 309 and 332 of the Communications Act, as amended, 47 U.S.C. Sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

■ 11. Section 25.208 is amended by redesignating paragraphs (p) through (t) as paragraphs (q) through (u) and by adding new paragraph (p) to read as follows:

§ 25.208 Power flux-density limits.

* * * * *

(p) The power flux-density at the Earth's surface produced by emissions from a space station in either the Earth exploration-satellite service in the band 25.5–27 GHz or the inter-satellite service in the band 25.25–27.5 GHz for all conditions and for all methods of modulation shall not exceed the following values:

-115 dB(W/m^2) in any 1 MHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

$-115 + 0.5(-5)$ dB(W/m^2) in any 1 MHz band for angles of arrival between 5 and 25 degrees above the horizontal plane;

-105 dB(W/m^2) in any 1 MHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

* * * * *

PART 73—RADIO BROADCAST SERVICES

■ 12. The authority citation for part 73 continues to read as follows:

Authority: 47 U.S.C. 154, 303, 334, 336 and 339.

§ 73.220 [Amended]

■ 13. Section 73.220 is amended by removing and reserving paragraph (b).

§ 73.603 [Amended]

■ 14. Section 73.603 is amended by removing and reserving paragraph (b).

■ 15. Section 73.701 is amended by revising paragraph (e) to read as follows:

§ 73.701 Definitions.

* * * * *

(e) *Coordinated Universal Time (UTC).* Time scale, based on the second (SI), as defined in Recommendation ITU–R TF.460–6. For most practical purposes associated with the ITU *Radio Regulations,* UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT. (RR)

* * * * *

■ 16. Section 73.702 is amended by revising paragraph (f), and by redesignating paragraphs (g) through (k) as (i) through (m) and by adding new paragraphs (g) and (h) to read as follows:

§ 73.702 Assignment and use of frequencies.

* * * * *

(f) *Exclusive allocations.* Where practical, assigned frequencies shall be within the following bands, which are allocated to the broadcasting service on a primary and exclusive basis:

(1) *Worldwide allocations.* The following bands are allocated to the broadcasting service on a primary and exclusive basis throughout the world: 5950–6200 kHz, 9500–9900 kHz, 11650–12050 kHz, 13600–13800 kHz, 15100–15600 kHz, 17550–17900 kHz, 21450–21850 kHz, and 25670–26100 kHz.

(2) *Regional allocation.* The band 7200–7300 kHz is allocated to the broadcasting service on a primary and exclusive basis in Region 1 and Region 3.

Note to (f)(2): For the allocation of frequencies, the ITU has divided the world into three Regions, which are defined in 47 CFR 2.104(b). The bands 7100–7300 kHz and 7400–7450 kHz are not allocated to the broadcasting service in Region 2.

(g) *Co-primary allocations.* Frequencies may also be assigned from within the following bands, which are allocated on a primary, but not exclusive, basis to the broadcasting service:

(1) *Worldwide allocations.* (i) Until April 1, 2007, the following frequency bands are allocated to the broadcasting and fixed services on a co-primary basis throughout the world: 5900–5950 kHz, 7300–7350 kHz, 9400–9500 kHz, 11600–11650 kHz, 12050–12100 kHz, 13570–13600 kHz, 13800–13870 kHz, 15600–15800 kHz, 17480–17550 kHz, and 18900–19020 kHz (WARC–92 HFBC bands). In addition, the band 5900–5950 kHz is allocated to the land mobile service on a primary basis in Region 1 and to the mobile except aeronautical mobile (R) service on a primary basis in Region 2 until April 1, 2007. After April 1, 2007, the WARC–92 HFBC bands are allocated to the broadcasting service on an exclusive basis throughout the world.

(ii) Until March 29, 2009, the band 7350–7400 kHz is allocated to the broadcasting and fixed services on a co-primary basis throughout the world. After March 29, 2009, the band 7350–7400 kHz is allocated to the broadcasting service on an exclusive basis throughout the world, except in the countries listed in 47 CFR 2.106, footnote 5.143C where the band 7350–7400 kHz continues to be allocated to the broadcasting and fixed services on a co-primary basis.

(2) *Regional allocations.* (i) Until March 29, 2009, the band 7100–7200 kHz is allocated to the amateur and broadcasting services on a co-primary basis in Region 1 and Region 3; however, during this transition period, the use of the band 7100–7200 kHz by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After March 27, 2005, where practical, requests for frequency assignments in the band 7100–7200 kHz shall be satisfied within the band 7200–7350 kHz. After March 29, 2009, the band 7100–7200 kHz is no longer allocated to the broadcasting service.

(ii) Until March 29, 2009, the band 7400–7450 kHz is allocated to the broadcasting service on a co-primary basis with the fixed service in Region 1 and Region 3. After March 29, 2009, the band 7400–7450 kHz is allocated on an exclusive basis to the broadcasting service in Region 1 and Region 3, except in the countries listed in 47 CFR 2.106, footnote 5.143C where the band 7400–7450 kHz continues to be allocated to the broadcasting and fixed services on a co-primary basis.

(h) *Requirements for Regional operation.* (1) Frequency assignments in the bands 7100–7300 kHz (7200–7300 kHz after March 29, 2009) and 7400–7450 kHz shall be limited to international broadcast stations that are located in the Pacific insular areas located in Region 3 (as defined in 47 CFR 2.105(a), note 4) that transmit to geographical zones and areas of reception in Region 1 or Region 3.

(2) During the hours of 0800–1600 UTC (Coordinated Universal Time) antenna gain with reference to an isotropic radiator in any easterly direction that would intersect any area in Region 2 shall not exceed 2.15 dBi, except in the case where a transmitter power of less than 100 kW is used. In this case, antenna gain on restricted azimuths shall not exceed that which is determined in accordance with equation below. Stations desiring to operate in this band must submit sufficient antenna performance information to ensure compliance with these restrictions. Permitted gain for transmitter powers less than 100 kW:

$$\mathrm{Gi} = 2.15 + 10\ \log\left(\frac{100}{\mathrm{Pa}}\right)\ \mathrm{dBi}$$

Where:

Gi = maximum gain permitted with reference to an isotropic radiator.

Pa = Transmitter power employed in kW.

* * * * *

■ 17. Section 73.751 is revised to read as follows:

§ 73.751 Operating power.

No international broadcast station shall be authorized to install, or be licensed for operation of, transmitter equipment with:

(a) A rated carrier power of less than 50 kilowatts (kW) if double-sideband (DSB) modulation is used,

(b) A peak envelope power of less than 50 kW if single-sideband (SSB) modulation is used, or

(c) A mean power of less than 10 kW if digital modulation is used.

■ 18. Section 73.756 is revised to read as follows:

§ 73.756 System specifications for double-sideband (DBS) modulated emissions in the HF broadcasting service.

(a) *Channel Spacing.* The nominal spacing for DSB shall be 10 kHz. However, the interleaved channels with a separation of 5 kHz may be used in accordance with the relative protection criteria, provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved.

(b) *Emission Characteristics.* (1) *Nominal carrier frequencies.* Nominal carrier frequencies shall be integral multiples of 5 kHz.

(2) *Audio-frequency band.* The upper limit of the audio-frequency band (at—3 dB) of the transmitter shall not exceed 4.5 kHz and the lower limit shall be 150 Hz, with lower frequencies attenuated at a slope of 6 dB per octave.

(3) *Modulation processing.* If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

(4) *Necessary bandwidth.* The necessary bandwidth shall not exceed 9 kHz.

§§ 73.757 through 73.761 [Redesignated as §§ 73.759 through 73.761].

■ 19. Sections 73.757, 73.758, 73.759, and 73.761 are redesignated as §§ 73.759, 73.760, 73.761, and 73.762.

■ 20. New § 73.757 is added to read as follows:

§ 73.757 System specifications for single-sideband (SSB) modulated emissions in the HF broadcasting service.

(a) *System parameters.* (1) *Channel spacing.* In a mixed DSB, SSB and digital environment (see Resolution 517 (Rev.WRC–03)), the channel spacing shall be 10 kHz. In the interest of spectrum conservation, it is also permissible to interleave SSB emissions midway between two adjacent DSB channels, *i.e.*, with 5 kHz separation between carrier frequencies, provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved. In an all inclusive SSB environment, the channel spacing and carrier frequency separation shall be 5 kHz.

(2) *Equivalent sideband power.* When the carrier reduction relative to peak envelope power is 6 dB, an equivalent SSB emission is one giving the same audio-frequency signal-to-noise ratio at the receiver output as the corresponding DSB emission, when it is received by a DSB receiver with envelope detection. This is achieved when the sideband power of the SSB emission is 3 dB larger than the total sideband power of the DSB emission. (The peak envelope power of the equivalent SSB emission and the carrier power are the same as that of the DSB emission.)

(b) *Emission Characteristics.* (1) *Nominal carrier frequencies.* Nominal carrier frequencies shall be integral multiples of 5 kHz.

(2) *Frequency tolerance.* The frequency tolerance shall be 10 Hz.

Note 1 to Paragraph (b)(2): The ITU suggests that administrations avoid carrier frequency differences of a few hertz, which cause degradations similar to periodic fading. This could be avoided if the frequency tolerance were 0.1 Hz, a tolerance which would be suitable for SSB emissions.

Note 2 to Paragraph (b)(2): The SSB system adopted for the bands allocated exclusively to HF broadcasting does not require a frequency tolerance less than 10 Hz. The degradation mentioned in Note 1 occurs when the ratio of wanted-to-interfering signal is well below the required protection ratio. This remark is equally valid for both DSB and SSB emissions.

(3) *Audio-frequency band.* The upper limit of the audio-frequency band (at—3 dB) of the transmitter shall not exceed 4.5 kHz with a further slope of attenuation of 35 dB/kHz and the lower limit shall be 150 Hz with lower frequencies attenuated at a slope of 6 dB per octave.

(4) *Modulation processing.* If audio-frequency signal processing is used, the dynamic range of the modulating signal shall be not less than 20 dB.

(5) *Necessary bandwidth.* The necessary bandwidth shall not exceed 4.5 kHz.

(6) *Carrier reduction (relative to peak envelope power).* In a mixed DSB, SSB and digital environment, the carrier reduction shall be 6 dB to allow SSB emissions to be received by conventional DSB receivers with envelope detection without significant deterioration of the reception quality.

(7) *Sideband to be emitted.* Only the upper sideband shall be used.

(8) *Attenuation of the unwanted sideband.* The attenuation of the unwanted sideband (lower sideband) and of intermodulation products in that part of the emission spectrum shall be at least 35 dB relative to the wanted sideband signal level. However, since there is in practice a large difference between signal amplitudes in adjacent channels, a greater attenuation is recommended.

■ 21. New § 73.758 is added to read as follows:

§ 73.758 System specifications for digitally modulated emissions in the HF broadcasting service.

(a) For digitally modulated emissions, the Digital Radio Mondiale (DRM) standard shall be employed. Both digital audio broadcasting and datacasting are authorized. The RF requirements for the DRM system are specified in paragraphs (b) and (c), of this section.

(b) *System parameters.* (1) *Channel spacing.* The initial spacing for digitally modulated emissions shall be 10 kHz. However, interleaved channels with a separation of 5 kHz may be used in accordance with the appropriate protection criteria appearing in Resolution 543 (WRC–03), provided that the interleaved emission is not to the same geographical area as either of the emissions between which it is interleaved.

(2) *Channel utilization.* Channels using digitally modulated emissions may share the same spectrum or be interleaved with analog emissions in the same high frequency broadcasting (HFBC) band, provided the protection afforded to the analog emissions is at least as great as that which is currently in force for analog-to-analog protection. Accomplishing this may require that the digital spectral power density (and total power) be lower by several dB than is currently used for either DSB or SSB emissions.

(c) *Emission characteristics.* (1) *Bandwidth and center frequency.* A full digitally modulated emission will have a 10 kHz bandwidth with its center frequency at any of the 5 kHz center frequency locations in the channel raster currently in use within the HFBC bands. Among several possible ''simulcast'' modes are those having a combination of analog and digital emissions of the same program in the same channel, that may use a digital emission of 5 kHz or 10 kHz bandwidth, next to either a 5 kHz or 10 kHz analog emission. In all cases of this type, the 5 kHz interleaved raster used in HFBC shall be adhered to in placing the emission within these bands.

(2) *Frequency tolerance.* The frequency tolerance shall be 10 Hz. See Section 73.757(b)(2), notes 1 and 2.

(3) *Audio-frequency band.* The quality of service, using digital source coding within a 10 kHz bandwidth, taking into account the need to adapt the emission coding for various levels of error avoidance, detection and correction, can range from the equivalent of

monophonic FM (approximately 15 kHz) to the low-level performance of a speech codec (of the order of 3 kHz). The choice of audio quality is connected to the needs of the broadcaster and listener, and includes the consideration of such characteristics as the propagation conditions expected. There is no single specification, only the upper and lower bounds noted in this paragraph.

(4) *Modulation.* Quadrature amplitude modulation (QAM) with orthogonal frequency division multiplexing (OFDM) shall be used. 64–QAM is feasible under many propagation conditions; others such as 32–, 16– and 8–QAM are specified for use when needed.

(5) *RF protection ratio values.* The protection ratio values for analogue and digital emissions for co-channel and adjacent channel conditions shall be in accordance with Resolution 543 (WRC–03) as provisional RF protection ratio values subject to revision or confirmation by a future competent conference.

§ 73.766 [Removed and Reserved]

■ 22. Section 73.766 is removed and reserved.

PART 90—PRIVATE LAND MOBILE RADIO SERVICES

■ 23. The authority citation for part 90 continues to read as follows:

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), 332(c)(7).

■ 24.Section 90.20, paragraph (c)(3) is amended by revising the entry in the ''Public Safety Pool Table'' for ''2000–10,000'' in the kilohertz table, removing the entry for ''158.4725'' and add in its place ''159.4725'' in the megahertz table, and by adding paragraph (d)(89) to read as follows:

§ 90.20 Public Safety Pool.

* * * * *

(c) * * *

(3) *Frequencies.*

PUBLIC SAFETY POOL FREQUENCY TABLE

Frequency or band	Class of station(s)	Limitations	Coordinator
Kilohertz			
* * * *	*	*	*
2000 to 10,000	Fixed, base, or mobile	6, 89	PX.
Megahertz			
* * * *	*	*	*
159.4725	....do	80	PO.
* * * *	*	*	*

(d) * * *

(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.*

* * * * *

■ 25.Section 90.35, paragraph (b)(3) is amended by revising the entry for ''2000 to 25,000'' under Kilohertz in the ''Industrial/Business Pool Frequency Table'' and paragraph (c)(90) to read as follows:

§ 90.35 Industrial/Business Pool.

* * * * *

(b) * * *

(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	
* * * *	*	*	*

* * * * *

(c) * * *

(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.

* * * * *

PART 97—AMATEUR RADIO SERVICE

■ 26. The authority citation for part 97 continues to read as follows:

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.

■ 27. Section 97.301 is amended by revising the tables in paragraphs (a), (b), (c), (d), and (e) to read as follows:

§ 97.301 Authorized frequency bands.

* * * * *

(a) * * *

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).
1.25 m		219–220		(a), (e).
Do		222–225		(a).
UHF	MHz	MHz	MHz	
70 cm	430–440	420–450	420–450	(a), (b), (f).
33 cm.		902–928		(a), (b), (g).
23 cm	1240–1300	1240–1300	1240–1300	(b), (h), (i).
13 cm	2300–2310	2300–2310	2300–2310	(a), (b), (j).
Do	2390–2450	2390–2450	2390–2450	(a), (b), (j).
SHF	GHz	GHz	GHz	
9 cm	3.4–3.475	3.3–3.5	3.3–3.5	(a), (b), (k), (l).
5 cm	5.650–5.850	5.650–5.925	5.650–5.850	(a), (b), (m).
3 cm	10.00–10.50	10.00–10.50	10.00–10.50	(a), (c), (i), (n).
1.2 cm	24.00–24.25	24.00–24.25	24.00–24.25	(a), (b), (i), (o).
EHF	GHz	GHz	GHz	
6 mm	47.0–47.2	47.0–47.2	47.0–47.2	
4 mm	75.5–81.0	75.5–81.0	75.5–81.0	(b), (c), (h), (k), (r).
2.5 mm	122.25–123	122.25–123	122.25–123	(p).
2 mm	134–141	134–141	134–141	(b), (c), (h), (k).
1 mm	241–250	241–250	241–250	(b), (c), (h), (k), (q).
	above 275	above 275	above 275	(k).

(b) * * *

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), (b), (c).
HF	MHz	MHz	MHz	
80 m	3.50–3.75	3.50–3.75	3.50–3.75	(a).
75 m	3.75–3.80	3.75–4.00	3.75–3.90	(a).
40 m	7.0–7.2	7.0–7.3	7.0–7.2	(a), (t).
30 m	10.10–10.15	10.10–10.15	10.10-10.15	(d).
20 m	14.00–14.35	14.00–14.35	14.00–14.35.	
17 m	18.068–18.168	18.068–18.168	18.068–18.168.	
15 m	21.00–21.45	21.00–21.45	21.00–21.45.	
12 m	24.89–24.99	24.89–24.99	24.89–24.99.	
10 m	28.0–29.7	28.0–29.7.	28.0–29.7.	

(c) * * *

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), (b), (c).
HF	MHz	MHz	MHz	
80 m	3.525–3.750	3.525–3.750	3.525–3.750	(a).
75 m	3.775–3.800	3.775–4.000	3.775–3.900	(a).
40 m	7.025–7.200	7.025–7.300	7.025–7.200	(a), (t).
30 m	10.10–10.15	10.10–10.15	10.10–10.15	(d).
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	24.89–24.99	24.89–24.99	24.89–24.99.	
10 m	28.0–29.7	28.0–29.7	28.0–29.7.	

(d) * * *

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), (b), (c).
HF	MHz	MHz	MHz	
80 m.	3.525–3.750	3.525–3.750	3.525–3.750	(a).
75 m		3.85–4.00	3.85–3.750	(a).
40 m	7.025–7.150	7.025–7.150	7.025–7.150	(a).
Do		7.225–7.300		(a), (t).
30 m	10.10–10.15	10.10–10.15	10.10–10.15	(d).
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	21.30–21.45	21.30–21.45	21.30–21.45.	
12 m	24.89–24.99	24.89–24.99	24.89–24.99.	
10 m	28.0–29.7	28.0–29.7	28.0–29.7.	

(e)* * *

Wavelength band	ITU—Region 1	ITU—Region 2	ITU—Region 3	Sharing requirements see § 97.303 (Paragraph)
HF	MHz	MHz	MHz	
80 m	3.675–3.725	3.675–3.725	3.675–3.725.	
40 m	7.050–7.075		7.050–7.075	(a).
Do	7.100–7.150	7.100–7.150	7.100–7.150	(a), (t).
15 m	21.10–21.20	21.10–21.20	21.10–21.20.	
10 m	28.10–28.50	28.10–28.50	28.10–28.50.	
VHF	MHz	MHz	MHz	
1.25 m		222–225		(a).
UHF	MHz	MHz	MHz	
23 cm	1270–1295	1270–1295	1270–1295	(h), (i).

■ 28. Section 97.303 is amended by revising paragraphs (a), (b), (c), (f)(4), (h), (i), (k), (l)(1), (l)(2), (l)(3) and (r)(2) and by adding paragraph (t) to read as follows:

§ 97.303 Frequency sharing requirements.

* * * * *

(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 allocations), 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. (*See* ITU *Radio Regulations*, edition of 2004, No. 4.8.)

(b) No amateur station transmitting in the 1900–2000 kHz segment, the 70 cm band, the 33 cm band, the 23 cm band, the 13 cm band, the 9 cm band, the 5 cm band, the 3 cm band, the 24.05–24.25 GHz segment, the 76–77.5 GHz segment, the 78–81 GHz segment, the 136–141 GHz segment, and the 241–248 GHz segment shall not cause harmful interference to, nor is protected from interference due to the operation of, the Federal radiolocation service.

(c) No amateur station transmitting in the 1900–2000 kHz segment, the 3 cm band, the 76–77.5 GHz segment, the 78–81 GHz segment, the 136–141 GHz segment, and the 241–248 GHz segment shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the non-Federal radiolocation service.

* * * * *

(f) * * *

(4) No amateur station transmitting in the 449.75–450.00 MHz segment shall cause interference to, nor is protected from interference due to the operation of stations in, the space operation and space research services.

* * * * *

(h) No amateur station transmitting in the 23 cm band, the 3.3–3.4 GHz segment, the 3 cm band, the 24.05–24.25 GHz segment, the 76–77.5 GHz segment, the 78–81 GHz segment, the 136–141 GHz segment, and the 241–248 GHz segment shall cause harmful interference to, nor is protected from interference due to the operation of, stations authorized by other nations in the radiolocation service.

(i) In the 23 cm band, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the radionavigation-satellite service, the aeronautical radionavigation service, the Earth exploration-satellite service (active), or the space research service (active).

* * * * *

(k) No amateur station transmitting in the following segments shall cause harmful interference to stations in the radio astronomy service: 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, and 926–945 GHz. No amateur station transmitting in following segments shall cause harmful interference to stations in the Earth exploration-satellite service (passive) and 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, and 951–956 GHz.

(l) * * *

(1) In ITU Regions 2 and 3, the 9 cm band is allocated to the amateur service on a secondary basis. In ITU Region 1, the segment 3.4–3.475 GHz is allocated to the amateur service on a secondary basis for use only in Germany, Israel, and the United Kingdom.

(2) In the United States, the 9 cm band is allocated to the amateur and non-Federal radiolocation services on a secondary basis.

(3) In the 3.4–3.5 GHz segment, no amateur station shall cause harmful interference to, nor is protected from interference due to the operation of, stations in the fixed and fixed-satellite services.

* * * * *

(r) * * *

(2) No amateur or amateur-satellite station transmitting in the 75.5–76 GHz segment shall cause interference to, nor is protected from, interference due to the operation of stations in the fixed service. After January 1, 2006, the 75.5–76 GHz segment is no longer allocated to the amateur service or to the amateur-satellite service.

* * * * *

(t) (1) The 7–7.1 MHz segment is allocated to the amateur and amateur-satellite services on a primary and exclusive basis throughout the world, except that the 7–7.05 MHz segment is:

(i) Additionally allocated to the fixed service on a primary basis in the countries listed in 47 CFR 2.106, footnote 5.140; and

(ii) Alternatively allocated to the fixed service on a primary and exclusive basis (*i.e.*, the segment 7–7.05 MHz is not allocated to the amateur service) in the countries listed in 47 CFR 2.106, footnote 5.141.

(2) The 7.1–7.2 MHz segment is allocated to the amateur service on an exclusive basis in Region 2. Until March 29, 2009, the 7.1–7.2 MHz segment is allocated to the amateur and broadcasting services on a co-primary basis in Region 1 and Region 3 and the use of the 7.1–7.2 MHz segment by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After March 29, 2009, the 7.1–7.2 MHz segment is allocated to the amateur service on a primary and exclusive basis throughout the world, except that the 7.1–7.2 MHz segment is additionally allocated to the fixed and mobile except aeronautical mobile (R) services on a primary basis in the countries listed in 47 CFR 2.106, footnote 5.141B.

(3) The 7.2–7.3 MHz segment is allocated to the amateur service on an exclusive basis in Region 2 and to the broadcasting service on an exclusive basis in Region 1 and Region 3. The use of the 7.2–7.3 MHz segment in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

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