

visual signal waveforms and of the signal basebands and occupied bandwidths. If aural subcarriers are to be used for transmitting aural portion of the subscription program, for decoder control, or for other purposes, a full description and specifications of the multiplex subcarrier signals and all modulation levels must be included.

(4) Preliminary test data must be submitted to show system capability with regard to compliance with the criteria set forth in § 73.644(b).

(5) The applicant must identify the specific requirements of §§ 73.682, 73.687 and 73.699 (Figures 6 and 7) from which the transmitted signal will normally deviate.

(6) The applicant must specify the method to be used in determining and maintaining the operating power of the transmitter if the procedures given in § 73.663 cannot be used due to suppression of the synchronizing pulses or for other reasons. If the operating power of the station must be reduced to accommodate the encoded aural or video signal, the operating power limitations must be specified.

(7) The applicant must supply any additional information and test data requested by the FCC, to show to its satisfaction that the criteria given in § 73.644(b) are met.

(8) The information submitted by the applicant may be subject to check by field tests conducted without expense to the FCC or, if deemed necessary, at the laboratory or in the field by FCC personnel. This may include the actual submission of equipment for system testing under the provisions of § 2.945 of part 2 of the Rules.

(9) No technical system will be deemed approved unless and until the FCC has notified the applicant in writing of the approval. Such notification of approval will be by letter to the applicant.

(10) Approval by the FCC is limited to a determination that the particular technical system (the scheme for encoding and decoding the subscription TV signal) is capable of meeting the criteria given in § 73.644(b).

(11) The FCC will maintain a listing of approved technical systems.

(c) Multichannel sound may be transmitted for stereophonic or bilingual

service with encoded subscription programs provided the technical operating specifications for this service are included in the application for advance system approval.

(d) Subscriber decoder devices must comply with any applicable provisions of subpart H, part 15 of the FCC Rules for TV interface devices.

(e) No modifications may be made by either the applicant or the user of a system having advance FCC approval that would change any of the operating conditions as submitted in the application for advance approval. Should system modifications be necessary, a new application must be submitted in accordance with the requirements of this section.

[48 FR 56391, Dec. 21, 1983]

Subpart N—FCC Procedure for Testing Class A, B and S Emergency Position Indicating Radiobeacons (EPIRBs)

SOURCE: 56 FR 11683, Mar. 20, 1991, unless otherwise noted.

GENERAL

§ 2.1501 Introduction.

The procedure described herein sets forth uniform methods for testing Class A, B and S Emergency Position Indicating Radiobeacons (EPIRBs) for compliance with the applicable portions of the FCC Rules and Regulations. Other methods and test results may be used provided they are fully documented and deemed by the Commission to yield results equivalent to the procedures set forth in this section.

§ 2.1503 Test environment.

(a) *Measurement sites.* Radiated emission tests for peak effective radiated power (PERP), spurious emissions and power in the test mode are to be performed on an open field test site as shown in Figure 1. The site is to be located on level ground with an obstruction-free, 60 m by 52 m, elliptical area. The site is to be equipped with an antenna mast capable of adjustment from 1 to 4 m. The center of a metal ground

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plane at least one wavelength in diameter at 121.5 MHz (2.47 m) is to be located 30 m from the receiving antenna. The ground plane is to have provisions for mounting removable quarter-wave verticle elements to produce a monopole antenna at both 121.5 and 243 MHz with the VSWR of less than 1.5.

NOTE: It is desirable that the level of radiated ambient EME at the test site be at least 6 dB below the FCC limits applicable to the EPIRB. It is, of course, not always possible to meet this condition. If the ambient field strength at some frequencies within the specified measurement ranges is too high, it is recommended that one or more of the following corrective steps be employed:

(1) Perform measurements in critical frequency bands during hours when broadcast and other radio stations are off-the-air and ambients from industrial equipment are lower.

(2) Insofar as is possible, orient the axis of an open area test site to discriminate against strong ambient signals.

(3) Vary the bandwidth of the measuring instrument to separate ambient EME from emissions from the EPIRB.

(b) *Temperature*. Except as otherwise noted, the ambient temperature during testing is to be within the range of 4 to 35 °C (40 to 95 °F).

§ 2.1505 Test instrumentation and equipment.

(a) *Receiver (field intensity meter)*. A calibrated field intensity meter (FIM) with a frequency range of 30 to 1000 MHz is required for measuring radiated emission levels. This instrument should be capable of making peak measurements with a bandwidth of 100 kHz.

(b) *Spectrum analyzer*. Spectral measurements are to be made with a spectrum analyzer with a minimum resolution bandwidth no greater than 10 Hz. The video filter, if used, should have a bandwidth wide enough so as to not affect peak readings. A linear video output is desirable for performing measurements of modulation characteristics.

(c) *Storage oscilloscope*. Measurements of modulation characteristics are to be made using a calibrated storage oscilloscope. This instrument is to be DC coupled and capable of manually triggered single sweeps.

(d) *Frequency counter*. A frequency counter with an accuracy of at least 5 parts per million is required for measuring the carrier frequency.

(e) *Signal generator*. A calibrated signal generator with an output of at least 75 mW at 121.5 and 243 MHz is required for generating a reference signal for site calibration.

(f) *Antenna*. Radiated emissions are to be measured with calibrated, tuned, half-wave dipole antennas covering the frequency range of 30 to 1000 MHz.

(g) *Temperature chamber*. Tests which call for subjecting the EPIRB to temperature levels other than the ambient temperature are to be performed in a temperature test chamber which can be adjusted to stable temperatures from –20 to +55 °C. This chamber is to be of sufficient size to accommodate the EPIRB under test.

(h) *Vibration table*. A vibration table capable of vibrating the EPIRB with a sinusoidal motion is required. The table must be capable of varying the frequency of vibration either linearly or logarithmically over a range of 4 to 33 Hz with maximum peak amplitudes of up to 2.5 mm.

(i) *Salt fog chamber*. A chamber capable of producing salt fog at a temperature of 35 °C for 48 hours is required. This chamber is to be of sufficient size to accommodate the EPIRB under test.

(j) *Drop test facility*. A facility which will permit dropping an EPIRB from a height of 20 m into water is required. The water must be deep enough so that the EPIRB will not touch bottom when dropped.

ENVIRONMENTAL AND OPERATIONAL TEST PROCEDURES

§ 2.1507 Test frequencies.

Testing of an EPIRB for compliance outside a shielded room on a distress frequency is prohibited, since this may interfere with emergency communications. Therefore, all compliance testing outside a shielded room should be conducted on one of the pairs of alternate frequencies specified below:

121.600/243.200 MHz
121.650/243.300 MHz
121.700/243.400 MHz
121.750/243.500 MHz
121.800/243.600 MHz
121.850/243.700 MHz