

(2) When any change is made in the transmitter which may affect the modulation characteristics.

(d) The determinations required by paragraphs (a), (b), and (c) of this section may, at the opinion of the licensee, be made by a qualified engineering measurement service, in which case the required record entries shall show the name and address of the engineering measurement service as well as the name of the person making the measurements.

(e) In the case of mobile transmitters, the determinations required by paragraphs (a) and (c) of this section may be made at a test or service bench: *Provided*, That the measurements are made under load conditions equivalent to actual operating conditions; and provided further, that after installation in the mobile unit the transmitter is given a routine check to determine that it is capable of being received satisfactorily by an appropriate receiver.

§ 90.217 Exemption from technical standards.

Except as noted herein, transmitters used at stations licensed below 800 MHz on any frequency listed in subparts B and C of this part or licensed on a business category channel above 800 MHz which have an output power not exceeding 120 milliwatts are exempt from the technical requirements set out in this subpart, but must instead comply with the following:

(a) For equipment designed to operate with a 25 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 40 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(b) For equipment designed to operate with a 12.5 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 25 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(c) For equipment designed to operate with a 6.25 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 12.5 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

(d) Transmitters may be operated in the continuous carrier transmit mode.

(e) Transmitters used for wireless microphone operations and operating on frequencies allocated for Federal use must comply with the requirements of § 90.265(b).

[60 FR 37267, July 19, 1995, as amended at 62 FR 2041, Jan. 15, 1997; 62 FR 18927, Apr. 17, 1997; 70 FR 21661, Apr. 27, 2005]

§ 90.219 Use of signal boosters.

Licensees authorized to operate radio systems in the frequency bands above 150 MHz may employ signal boosters at fixed locations in accordance with the following criteria:

(a) The amplified signal is retransmitted only on the exact frequency(ies) of the originating base, fixed, mobile, or portable station(s). The booster will fill in only weak signal areas and cannot extend the system's normal signal coverage area.

(b) Class A narrowband signal boosters must be equipped with automatic gain control circuitry which will limit the total effective radiated power (ERP) of the unit to a maximum of 5 watts under all conditions. Class B broadband signal boosters are limited to 5 watts ERP for each authorized frequency that the booster is designed to amplify.

(c) Class A narrowband boosters must meet the out-of-band emission limits of § 90.210 for each narrowband channel that the booster is designed to amplify. Class B broadband signal boosters must meet the emission limits of § 90.210 for frequencies outside of the booster's designed passband.

(d) Class B broadband signal boosters are permitted to be used only in confined or indoor areas such as buildings, tunnels, underground areas, etc., or in remote areas, i.e., areas where there is little or no risk of interference to other users.

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(e) The licensee is given authority to operate signal boosters without separate authorization from the Commission. Certificated equipment must be employed and the licensee must ensure that all applicable rule requirements are met.

(f) Licensees employing either Class A narrowband or Class B broadband signal boosters as defined in §90.7 are responsible for correcting any harmful interference that the equipment may cause to other systems. Normal co-channel transmissions will not be considered as harmful interference. Licensees will be required to resolve interference problems pursuant to §90.173(b).

[61 FR 31052, June 19, 1996, as amended at 63 FR 36610, July 7, 1998; 72 FR 35195, June 27, 2007]

Subpart J—Non-Voice and Other Specialized Operations

§ 90.231 Scope.

This subpart sets forth requirements and standards for licensing and operation of non-voice and other specialized radio uses (other than radiolocation). Such uses include secondary signaling, telemetry, radioteleprinter, radiofacsimile, automatic vehicle monitoring (AVM), radio call box, relay, vehicular repeater, and control station operations.

§ 90.233 Base/mobile non-voice operations.

The use of A1D, A2D, F1D, F2D, G1D, or G2D emission may be authorized to base/mobile operations in accordance with the following limitations and requirements.

(a) Licensees employing non-voice communications are not relieved of their responsibility to cooperate in the shared use of land mobile radio channels. See also §§90.403 and 90.173(a) and (b).

(b) Authorization for non-voice emission may be granted only on frequencies subject to the coordination requirements set forth in §90.175. Non-voice operations on frequencies not subject to these requirements are permitted only a secondary basis to voice communications.

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(c) Provisions of this section do not apply to authorizations for paging, telemetry, radiolocation, automatic vehicle monitoring systems (AVM), radioteleprinter, radio call box operations, or authorizations granted pursuant to subpart T of this part.

[48 FR 2794, Feb. 3, 1983, as amended at 49 FR 48711, Dec. 14, 1984; 56 FR 19602, Apr. 29, 1991; 72 FR 35195, June 27, 2007]

§ 90.235 Secondary fixed signaling operations.

Fixed operations may, subject to the following conditions, be authorized on a secondary basis for voice, tone or impulse signaling on a licensee's mobile service frequency(ies) above 25 MHz within the area normally covered by the licensee's mobile system. Voice signaling will be permitted only in the Public Safety Pool.

(a) The bandwidth shall not exceed that authorized to the licensee for the primary operations on the frequency concerned.

(b) The output power shall not exceed 30 watts at the remote site.

(c) A1D, A2D, F1D, F2D, G1D and G2D emissions may be authorized. In the Police Radio Service, A3E, F1E, F2E, F3E, G1E, G2E, or G3E emissions may also be authorized.

(d) Except for those systems covered under paragraph (e) of this section, the maximum duration of any non-voice signaling transmission shall not exceed 2 seconds and shall not be repeated more than 3 times. Signaling transmissions may be staggered at any interval or may be continuous. In the Public Safety Pool, the maximum duration of any voice signaling transmission shall not exceed 6 seconds and shall not be repeated more than 3 times.

(e) Until December 31, 1999, for systems in the Public Safety Pool authorized prior to June 20, 1975, and Power and Petroleum licensees as defined in §90.7 authorized prior to June 1, 1976, the maximum duration of any signaling transmission shall not exceed 6 seconds and shall not be repeated more than 5 times. For Power licensees authorized between June 1, 1976, and August 14, 1989, signaling duration shall not exceed 2 seconds and shall not be