

**§ 90.243**

adjustable downward to enable the user to comply with the specified field strength limit.

(iii) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 60 meters (197 feet) from any part of the station.

(4) For a station employing a conventional radiating antenna(s) (ex. vertical monopole, directional array) the following restrictions apply:

(i) The antenna height above ground level shall not exceed 15.0 meters (49.2 feet).

(ii) Only vertical polarization of antennas shall be permitted.

(iii) Transmitter RF output power shall not exceed 10 watts to enable the user to comply with the specified field strength limit.

(iv) The field strength of the emission on the operating frequency shall not exceed 2 mV/m when measured with a standard field strength meter at a distance of 1.50 km (0.93 miles) from the transmitting antenna system.

(5) For co-channel stations operating under different licenses, the following minimum separation distances shall apply:

(i) 0.50 km (0.31 miles) for the case when both stations are using cable antennas.

(ii) 7.50 km (4.66 miles) for the case when one station is using a conventional antenna and the other is using a cable antenna.

(iii) 15.0 km (9.3 miles) for the case when both stations are using conventional antennas.

(6) For a system of co-channel transmitters operating under a single authorization utilizing either cable or conventional antennas, or both, no minimum separation distance is required.

(7) An applicant desiring to locate a station that does not comply with the separation requirements of this section shall coordinate with the affected station.

(8) Each transmitter in a Travelers' Information Station shall be equipped with an audio low-pass filter. Such filter shall be installed either at the transmitter's audio input or between the modulation limiter and the modu-

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lated stage. At audio frequencies between 5 kHz and 20 kHz this filter shall have an attenuation greater than the attenuation at 1 kHz by at least:

$83 \log_{10} (f/5)$  decibels.

where "f" is the audio frequency in kHz. At audio frequencies above 20 kHz, the attenuation shall be at least 50 decibels greater than the attenuation at 1 kHz.

[43 FR 54791, Nov. 22, 1978; 44 FR 67118, Nov. 23, 1979; 49 FR 48712, Dec. 14, 1984, as amended at 54 FR 39740, Sept. 28, 1989; 56 FR 64874, Dec. 12, 1991; 62 FR 18928, Apr. 17, 1997; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 72 FR 35195, June 27, 2007; 73 FR 25497, May 6, 2008; 78 FR 50345, Aug. 19, 2013; 80 FR 25608, May 5, 2015]

**§ 90.243 Mobile relay stations.**

(a) Mobile relay operations will be authorized on frequencies below 512 MHz, except in the Radiolocation Service.

(b) Special provisions for mobile relay operations:

(1) In the Public Safety Pool, systems operating on any of the public safety frequencies listed in § 90.20(c) are permitted to be cross-banded for mobile stations operations with mobile relay stations where such stations are authorized.

(2) [Reserved]

(3) In the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in § 90.35(b)(3), mobile relay operation shall be on a secondary basis to other co-channel operations.

(4) Except where specifically precluded, a mobile relay station may be authorized to operate on any frequency available for assignment to base stations.

(5) A mobile station associated with mobile relay station(s) may not be authorized to operate on a frequency below 25 MHz.

(c) Technical requirements for mobile relay stations.

(1) Each new mobile relay station with an output power of more than one watt, and authorized after January 1, 1972, that is activated by signals below 50 MHz shall deactivate the station upon cessation of reception of the activating continuous coded tone signal. Licensees may utilize a combination of digital selection and continuous coded tone control where required to insure

selection of only the desired mobile relay station.

(2) Mobile relay stations controlled by signals above 50 MHz or authorized prior to January 1, 1972, to operate below 50 MHz are not required to incorporate coded signal or tone control devices unless the transmitters are consistently activated by undesired signals and cause harmful interference to other licensees. If activation by undesired signals causes harmful interference, the Commission will require the installation of tone control equipment within 90 days of a notice to the licensee.

(3) Except in the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3), each new mobile-relay station authorized after January 1, 1972, shall be equipped for automatic deactivation of the transmitter within 5 seconds after the signals controlling the station cease.

(4) Except in the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3), each new mobile-relay station authorized after January 1, 1972, during periods that is not controlled from a manned fixed control point; shall have an automatic time delay or clock device that will deactivate the station not more than 3 minutes after its activation by a mobile unit.

(5) In the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3), each mobile relay station, regardless of the frequency or frequencies of the signal by which it is activated shall be so designated and installed that it will be deactivated automatically when its associated receiver or receivers are not receiving a signal on the frequency or frequencies which normally activate it.

(6) Multiple mobile relay station radio systems shall use wireline or radio stations on fixed frequencies for

any necessary interconnect circuits between the mobile relay stations.

[43 FR 54791, Nov. 22, 1978, as amended at 49 FR 40177, Oct. 15, 1984; 50 FR 13606, Apr. 5, 1985; 50 FR 39680, Sept. 30, 1985; 50 FR 40976, Oct. 8, 1985; 54 FR 39740, Sept. 28, 1989; 56 FR 19603, Apr. 29, 1991; 56 FR 32517, July 17, 1991; 60 FR 37268, July 19, 1995; 61 FR 6576, Feb. 21, 1996; 62 FR 18928, Apr. 17, 1997; 74 FR 23803, May 21, 2009]

#### § 90.245 Fixed relay stations.

Except where specifically provided for, fixed relay stations shall be authorized to operate only on frequencies available for use by operational fixed stations.

#### § 90.247 Mobile repeater stations.

A mobile station authorized to operate on a mobile service frequency above 25 MHz may be used as a mobile repeater to extend the communications range of hand-carried units subject to the following:

(a) Mobile repeaters and/or associated hand-carried transmitters may be assigned separate base/mobile frequencies for this use in addition to the number of frequencies normally assignable to the licensee.

(b)-(c) [Reserved]

(d) In the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3), use of mobile repeaters is on a secondary basis to the stations of any other licensee. Hand carried units used in connection with mobile repeaters on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3) may operate only above 150 MHz and are limited to a maximum output power of six watts. The frequency and maximum power shall be specified in the station authorization.

(e) In the Industrial/Business Pool, on frequencies designated with an "LR" in the coordinator column of the frequency table in §90.35(b)(3), the output power of a mobile repeater station, when transmitting as a repeater station on the frequency used for communication with its associated pack-carried or hand-carried units, shall not exceed 6 watts except when the same frequency is also used by the same station