

more than 600 kHz must be attenuated at least $43 + 10 \text{ Log}_{10}$ (Power, in watts) dB below the level of the unmodulated carrier, or 80 dB, whichever is the lesser attenuation.

(e) Preemphasis shall not be greater than the impedance-frequency characteristics of a series inductance resistance network having a time constant of 75 microseconds. (See upper curve of Figure 2 of § 73.333.)

[51 FR 17028, May 8, 1986]

§ 73.318 FM blanketing interference.

Areas adjacent to the transmitting antenna that receive a signal with a strength of 115 dBu (562 mV/m) or greater will be assumed to be blanketed. In determining the blanketed area, the 115 dBu contour is determined by calculating the inverse distance field using the effective radiated power of the maximum radiated lobe of the antenna without considering its vertical radiation pattern or height. For directional antennas, the effective radiated power in the pertinent bearing shall be used.

(a) The distance to the 115 dBu contour is determined using the following equation:

$$D \text{ (in kilometers)} = 0.394 \sqrt{P}$$

$$D \text{ (in miles)} = 0.245 \sqrt{P}$$

Where P is the maximum effective radiated power (ERP), measured in kilowatts, of the maximum radiated lobe.

(b) After January 1, 1985, permittees or licensees who either (1) commence program tests, or (2) replace their antennas, or (3) request facilities modifications and are issued a new construction permit must satisfy all complaints of blanketing interference which are received by the station during a one year period. The period begins with the commencement of program tests, or commencement of programming utilizing the new antenna. Resolution of complaints shall be at no cost to the complainant. These requirements specifically do not include interference complaints resulting from malfunctioning or mistuned receivers, improperly installed antenna systems, or the use of high gain antennas or antenna booster amplifiers. Mobile receivers and non-RF devices such as

tape recorders or hi-fi amplifiers (phonographs) are also excluded.

(c) A permittee collocating with one or more existing stations and beginning program tests on or after January 1, 1985, must assume full financial responsibility for remedying new complaints of blanketing interference for a period of one year. Two or more permittees that concurrently collocate on or after January 1, 1985, shall assume shared responsibility for remedying blanketing complaints within the blanketing area unless an offending station can be readily determined and then that station shall assume full financial responsibility.

(d) Following the one year period of full financial obligation to satisfy blanketing complaints, licensees shall provide technical information or assistance to complainants on remedies for blanketing interference.

[28 FR 13623, Dec. 14, 1963, as amended at 52 FR 25866, July 9, 1987]

§ 73.319 FM multiplex subcarrier technical standards.

(a) The technical specifications in this Section apply to all transmissions of FM multiplex subcarriers except those used for stereophonic sound broadcasts under the provisions of § 73.322.

(b) *Modulation.* Any form of modulation may be used for subcarrier operation.

(c) *Subcarrier baseband.* (1) During monophonic program transmissions, multiplex subcarriers and their significant sidebands must be within the range of 20 kHz to 99 kHz.

(2) During stereophonic sound program transmissions (see § 73.322), multiplex subcarriers and their significant sidebands must be within the range of 53 kHz to 99 kHz.

(3) During periods when broadcast programs are not being transmitted, multiplex subcarriers and their significant sidebands must be within the range of 20 kHz to 99 kHz.

(d) *Subcarrier injection.* (1) During monophonic program transmissions, modulation of the carrier by the arithmetic sum of all subcarriers may not exceed 30% referenced to 75 kHz modulation deviation. However, the modulation of the carrier by the arithmetic

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sum of all subcarriers above 75 kHz may not modulate the carrier by more than 10%.

(2) During stereophonic program transmissions, modulation of the carrier by the arithmetic sum of all subcarriers may not exceed 20% referenced to 75 kHz modulation deviation. However, the modulation of the carrier by the arithmetic sum of all subcarriers above 75 kHz may not modulate the carrier by more than 10%.

(3) During periods when no broadcast program service is transmitted, modulation of the carrier by the arithmetic sum of all subcarriers may not exceed 30% referenced to 75 kHz modulation deviation. However, the modulation of the carrier by the arithmetic sum of all subcarriers above 75 kHz may not modulate the carrier by more than 10%.

(4) Total modulation of the carrier wave during transmission of multiplex subcarriers used for subsidiary communications services must comply with the provisions § 73.1570(b).

(e) Subcarrier generators may be installed and used with a type accepted FM broadcast transmitter without specific authorization from the FCC provided the generator can be connected to the transmitter without requiring any mechanical or electrical modifications in the transmitter FM exciter circuits.

(f) Stations installing multiplex subcarrier transmitting equipment must ensure the proper suppression of spurious or harmonic radiations. See §§ 73.317, 73.1590 and 73.1690. If the subcarrier operation causes the station's transmissions not to comply with the technical provisions for FM broadcast stations or causes harmful interference to other communication services, the licensee or permittee must correct the problem promptly or cease operation. The licensee may be required to verify the corrective measures with supporting data. Such data must be retained at the station and be made available to the FCC upon request.

[48 FR 28455, June 22, 1983, as amended at 48 FR 37216, Aug. 17, 1983; 49 FR 15080, Apr. 17, 1984; 49 FR 38131, Sept. 27, 1984; 50 FR 1534, Jan. 11, 1985; 51 FR 17029, May 8, 1986; 57 FR 48333, Oct. 23, 1992]

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§ 73.322 FM stereophonic sound transmission standards.

(a) An FM broadcast station shall not use 19 kHz \pm 20 Hz, except as the stereophonic pilot frequency in a transmission system meeting the following parameters:

(1) The modulating signal for the main channel consists of the sum of the right and left signals.

(2) The pilot subcarrier at 19 kHz \pm 2 Hz, must frequency modulate the main carrier between the limits of 8 and 10 percent.

(3) One stereophonic subcarrier must be the second harmonic of the pilot subcarrier (*i.e.*, 38 kHz) and must cross the time axis with a positive slope simultaneously with each crossing of the time axis by the pilot subcarrier. Additional stereophonic subcarriers are not precluded.

(4) Double sideband, suppressed-carrier, amplitude modulation of the stereophonic subcarrier at 38 kHz must be used.

(5) The stereophonic subcarrier at 38 kHz must be suppressed to a level less than 1% modulation of the main carrier.

(6) The modulating signal for the required stereophonic subcarrier must be equal to the difference of the left and right signals.

(7) The following modulation levels apply:

(i) When a signal exists in only one channel of a two channel (biphonic) sound transmission, modulation of the carrier by audio components within the baseband range of 50 Hz to 15 kHz shall not exceed 45% and modulation of the carrier by the sum of the amplitude modulated subcarriers in the baseband range of 23 kHz to 53 kHz shall not exceed 45%.

(ii) When a signal exists in only one channel of a stereophonic sound transmission having more than one stereophonic subcarrier in the baseband, the modulation of the carrier by audio components within the audio baseband range of 23 kHz to 99 kHz shall not exceed 53% with total modulation not to exceed 90%.

(b) Stations not transmitting stereo with the method described in (a), must limit the main carrier deviation caused