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(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 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]

§ 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:

(1) 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

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modulated subcarrier 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 by any modulating signals occupying the band 19 kHz \pm 20 Hz to 125 Hz.

(c) All stations, regardless of the stereophonic transmission system used, must not exceed the maximum modulation limits specified in §73.1570(b)(2). Stations not using the method described in (a), must limit the modulation of the carrier by audio components within the audio baseband range of 23 kHz to 99 kHz to not exceed 53%.

[51 FR 17029, May 8, 1986]

§ 73.333 Engineering charts.

This section consists of the following Figures 1, 1a, 2, and slider 4 and 5.

NOTE: The figures reproduced herein, due to their small scale, are not to be used in connection with material submitted to the F.C.C.