

§ 74.534

such action appears to be in the public interest, convenience and necessity.

(Sec. 318, 48 Stat. 1089, as amended by sec. 1, 74 Stat. 363; 47 U.S.C. 318)

[28 FR 13716, Dec. 14, 1963, as amended at 47 FR 55936, Dec. 14, 1982; 49 FR 7130, Feb. 27, 1984; 50 FR 32417, Aug. 12, 1985; 50 FR 48599, Nov. 26, 1985; 60 FR 55483, Nov. 1, 1995]

§ 74.534 Power limitations.

(a) for operation in the 944-952 MHz band:

Aural broadcast STL and intercity relay stations will be licensed with a power output not in excess of that necessary to render satisfactory service. The license for these stations will specify the maximum authorized power. The operating power shall not be greater than necessary to carry on the service and in no event more than 5 percent above the maximum power specified. Engineering standards have not been established for these stations. The efficiency factor for the last radio stage of transmitters employed will be subject to individual determination but shall be in general agreement with values normally employed for similar equipment operated within the frequency range authorized.

(b) For stations operating in bands above 17.7 GHz, the transmitter output power shall be limited to that necessary to accomplish the function of the system. Further, the output power of a transmitter on any authorized frequency shall not exceed the following:

Frequency band (GHz)	Maximum transmitter output power (watts) ¹
17.7 to 19.7	10.0
31.0 to 31.3	0.05

¹Peak envelope power.

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(2)

Frequency band (GHz)	Maximum allowable EIRP (dBW)
17.7 to 18.6	+55.0
18.6 to 18.8	+35.0
18.8 to 19.7	+35.0
31.0 to 31.3	No limit

[50 FR 4658, Feb. 10, 1985, as amended at 50 FR 7341, Feb. 22, 1985]

§ 74.535 Emission and bandwidth.

(a) For frequency modulation, the mean power of emissions shall be attenuated below the mean transmitter power (P) in accordance with the following schedule:

(1) On any frequency removed from the assigned frequency by more than 50% and up to 100% of the authorized bandwidth: at least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100% and up to 150% of the authorized bandwidth: at least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 150% of the authorized bandwidth: at least 43 + 10 Log(P) dB.

(b) For all emissions except frequency modulation, the peak power of emissions shall be attenuated below the peak envelope transmitter power (P) in accordance with the following schedule:

(1) On any frequency 500 Hz inside the channel edge up to and including 2500 Hz outside the same edge, the following formula will apply:

$$\text{Attenuation} = 29 \text{ Log} \left(\frac{25}{11} \left(D + 2.5 - \frac{W}{2} \right)^2 \right) \text{ dB}$$

or 50 dB whichever is the lesser attenuation. Where: D is the displacement frequency (kHz) from the center of the

authorized bandwidth; and W is the channel bandwidth (kHz).

(2) On any frequency removed from the channel edge by more than 2500 Hz: At least $43+10 \text{ Log (P) dB}$.

(c) In the event a station's emissions outside its authorized channel cause harmful interference, the Commission may require the licensee to take such further steps as may be necessary to eliminate the interference.

(d) For operation in the 18 GHz band: Aural broadcast STL, intercity relay stations and booster stations may be authorized to employ either digital or frequency modulation.

(e) For operation in the 18 GHz band: The mean power of emission shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) When using frequency modulation:

(i) On any frequency removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: At least 25 decibels;

(ii) On any frequency removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: At least 35 decibels;

(iii) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43+10 \log_{10}$ (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(2) When using digital modulation:

(i) In any 1 MHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels.

$$A = 11 + 0.4 (P-50) + 10 \log_{10} B$$

Where:

A = Attenuation (in decibels) below the mean output power level.

P = Percent removed from the carrier frequency.

B = Authorized bandwidth in MHz.

[Attenuation greater than 56 decibels is not required.]

(ii) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least $43 + 10 \log_{10}$ (mean output

power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(f) For operation in the 18 GHz band: When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion require greater attenuation than specified above.

(g) The following limitations apply to the operation of aural broadcast microwave booster stations:

(1) The booster station must receive and amplify the signals of the originating station and retransmit them on the same frequency without significantly altering them in any way. The characteristics of the booster transmitter output signal shall meet the requirements applicable to the signal of the originating station.

(2) The licensee is responsible for correcting any condition of interference that results from the radiation of radio frequency energy outside the assigned channel. Upon notice by the FCC to the station licensee that interference is being caused, operation of the apparatus must be immediately suspended and may not be resumed until the interference has been eliminated or it can be demonstrated that the interference is not due to spurious emissions. However, short term test transmissions may be made during the period of suspended operation to determine the efficacy of remedial measures.

(3) In each instance where suspension of operation is required, the licensee must submit a full report to the FCC after operation is resumed. The report must contain details of the nature of the interference, the source of interfering signals, and the remedial steps taken to eliminate the interference.

[28 FR 13716, Dec. 14, 1963, as amended at 48 FR 50332, Nov. 1, 1983; 49 FR 7130, Feb. 27, 1984; 49 FR 37777, Sept. 26, 1984; 50 FR 48599, Nov. 26, 1985]

§ 74.536 Directional antenna required.

(a) Aural broadcast STL and ICR stations are required to use a directional antenna with the minimum bandwidth necessary, consistent with good engineering practice, to establish the link.

(b) An aural broadcast STL or intercity relay station operating in the 17.7-19.7 GHz band shall employ an antenna