

**Federal Communications Commission**

**§ 74.637**

(2) The transmitter shall be so installed and protected that it is not accessible to other than duly authorized persons;

(3) TV relay stations, TV STL stations, TV translator relay stations, and TV microwave booster stations used with these stations, shall be observed at the receiving end of the microwave circuit as often as necessary to ensure proper station operation by a person designated by the licensee, who must institute measures sufficient to ensure prompt correction of any condition of improper operation. However, an STL station (and any TV microwave booster station) associated with a TV broadcast station operated by remote control may be observed by monitoring the TV station's transmitted signal at the remote control point. Additionally, a TV translator relay station (and any associated TV microwave booster station) may be observed by monitoring the associated TV translator station's transmitted signal.

(b) The FCC may notify the licensee to cease or modify operation in the case of frequency usage disputes, interference or similar situations where such action appears to be in the public interest, convenience and necessity.

[28 FR 13718, Dec. 14, 1963, as amended at 31 FR 15314, Dec. 7, 1966; 43 FR 1950, Jan. 13, 1978; 47 FR 55937, Dec. 14, 1982; 49 FR 7131, Feb. 27, 1984; 50 FR 32417, Aug. 12, 1985]

**§ 74.636 Power limitations.**

(a) On any authorized frequency, transmitter peak output power and the average power delivered to an antenna in this service must be the minimum amount of power necessary to carry out the communications desired and shall not exceed the values listed in the following table. Application of this principle includes, but is not to be limited to, requiring a licensee who replaces one or more of its antennas with larger antennas to reduce its antenna input power by an amount appropriate to compensate for the increased primary lobe gain of the replacement antenna(s). In no event shall the average equivalent isotropically radiated power (EIRP), as referenced to an isotropic radiator, exceed the values specified in the following table. In cases of harmful interference, the Commission may,

after notice and opportunity for hearing, order a change in the effective radiated power of this station. The table follows:

Frequency band (MHz)	Maximum allowable transmitter power	Maximum allowable EIRP <sup>2</sup>	
		Fixed (dBW)	Mobile (dBW)
2,025 to 2,110 .....	12.0	+45	+35
2,450 to 2,483.5 .....	12.0	+45	+35
6,425 to 6,525 .....	12.0	.....	+35
6,875 to 7,125 .....	12.0	+55	+35
12,700 to 13,250 .....	1.5	+55	+45
17,700 to 18,600 .....	.....	+55	.....
18,600 to 18,800 <sup>1</sup> .....	.....	+35	.....
18,800 to 19,700 .....	.....	+55	.....

<sup>1</sup> The power delivered to the antenna is limited to -3 dBW.  
<sup>2</sup> Stations licensed based on an application filed before April 16, 2003, for EIRP values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal.

(b) The EIRP of transmitters that use Automatic Transmitter Power Control (ATPC) shall not exceed the EIRP specified on the station authorization. The EIRP of non-ATPC transmitters shall be maintained as near as practicable to the EIRP specified on the station authorization.

[68 FR 12769, Mar. 17, 2003]

**§ 74.637 Emissions and emission limitations.**

(a) The mean power of emissions shall be attenuated below the mean transmitter power ( $P_{MEAN}$ ) in accordance with the following schedule:

(1) When using frequency modulation:

(i) On any frequency removed from the assigned (center) frequency by more than 50% up to and including 100% of the authorized bandwidth: At least 25 dB in any 100 kHz reference bandwidth ( $B_{REF}$ );

(ii) On any frequency removed from the assigned (center) frequency by more than 100% up to and including 250% of the authorized bandwidth: At least 35 dB in any 100 kHz reference bandwidth;

(iii) On any frequency removed from the assigned (center) frequency by more than 250% of the authorized bandwidth: At least  $43+10 \log_{10} (P_{MEAN}$  in watts) dB, or 80 dB, whichever is the

§ 74.637

47 CFR Ch. I (10–1–11 Edition)

lesser attenuation, in any 100 kHz reference bandwidth.

(2) When using transmissions employing digital modulation techniques:

(i) For operating frequencies below 15 GHz, in any 4 kHz reference bandwidth (B<sub>REF</sub>), 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 50 decibels:

A = 35 + 0.8 (G - 50) + 10 Log<sub>10</sub> B.

(Attenuation greater than 80 decibels is not required.)

Where:

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

G = Percent removed from the carrier frequency.

B = Authorized bandwidth in megahertz.

(ii) For operating frequencies above 15 GHz, in any 1 MHz reference bandwidth (B<sub>REF</sub>), 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 (G - 50) + 10 Log<sub>10</sub> B.

(Attenuation greater than 56 decibels is not required.)

(iii) In any 4 kHz reference bandwidth (B<sub>REF</sub>), 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<sub>10</sub> (P<sub>MEAN</sub> in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(3) Amplitude Modulation. For vestigial sideband AM video: On any frequency removed from the center frequency of the authorized band by more than 50%: at least 50 dB below peak power of the emission.

(b) For all emissions not covered in paragraph (a) of this section, the peak power of emissions shall be attenuated below the peak envelope transmitter power (P<sub>PEAK</sub>) 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:

A = 29 Log<sub>10</sub> [(25/11)[(D + 2.5 - (W/2))<sup>2</sup>] dB

(Attenuation greater than 50 decibels is not required.)

Where:

A = Attenuation (in dB) below the peak envelope transmitter power.

D = The displacement frequency (kHz) from the center of the authorized bandwidth.

W = the channel bandwidth (kHz).

(2) On any frequency removed from the channel edge by more than 2500 Hz: At least 43 + 10 Log<sub>10</sub> (P<sub>PEAK</sub> in watts) dB.

(c) For purposes of compliance with the emission limitation requirements of this section:

(1) If the transmitter modulates a single carrier, digital modulation techniques are considered as being employed when digital modulation occupies 50 percent or more of the total peak frequency deviation of a transmitted radio frequency carrier. The total peak frequency deviation will be determined by adding the deviation produced by the digital modulation signal and the deviation produced by any frequency division multiplex (FDM) modulation used. The deviation (D) produced by the FDM signal must be determined in accordance with § 2.202(f) of this chapter.

(2) If the transmitter modulates two or more carriers, with at least one using digital modulation and one using frequency or other analog modulation, digital modulation techniques are considered as being employed when the necessary bandwidth of the digital signal(s) is 50 percent or more of the aggregate bandwidth of the system, comprising the digital necessary bandwidth(s), the analog necessary bandwidth(s), and any bandwidth(s) between the digital and analog necessary bandwidths. In this case, the aggregate bandwidth shall be used for the authorized bandwidth (B) in paragraph (a) of this section, and for purposes of compliance with the bandwidth limitations in paragraph (g) of this section and in § 74.602 of this subpart; and the sum of the powers of the analog and digital signals shall be used for mean transmitter power (P<sub>MEAN</sub>) in paragraph (a)

or the peak envelope transmitter power ( $P_{PEAK}$ ) in paragraph (b) of this section, and for purposes of compliance with the power limitations in § 74.636 of this subpart.

(3) For demonstrating compliance with the attenuation requirements for frequency modulation and digital modulation in paragraph (a) of this section, the resolution bandwidth ( $B_{RES}$ ) of the measuring equipment used for measurements removed from the center frequency by more than 250 percent of the authorized bandwidth shall be 100 kHz for operating frequencies below 1 GHz, and 1 MHz for operating frequencies above 1 GHz. The resolution bandwidth for frequencies removed from the center frequency by less than 250 percent of the authorized bandwidth shall be the reference bandwidth ( $B_{REF}$ ) specified in the individual emission limitations, but may be reduced to not less than one percent of the authorized bandwidth ( $B$ ), adjusted upward to the nearest greater resolution bandwidth available on the measuring equipment. In all cases, if  $B_{RES}$  and  $B_{REF}$  are not equal, then the attenuation requirement must be increased (or decreased) as determined by a factor of  $10 \log_{10} [(B_{REF} \text{ in megahertz}) / (B_{RES} \text{ in megahertz})]$  decibels, where a positive factor indicates an increase in the attenuation requirement and a negative factor indicates a decrease in the attenuation requirement.

(4) Stations licensed pursuant to an application filed before March 17, 2005, using equipment not conforming with the emission limitations specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal. Existing equipment and equipment of product lines in production before April 16, 2003, authorized via certification or verification before March 17, 2005, for equipment not conforming to the emission limitations requirements specified above, may continue to be manufactured and/or marketed, but may not be authorized for use under a station license except at stations licensed pursuant to an application filed before March 17, 2005. Any non-conforming equipment authorized under a station license, and replaced on

or after March 17, 2005, must be replaced by conforming equipment.

(d) In the event that interference to other stations is caused by emissions outside the authorized channel, the FCC may require greater attenuation than that specified in paragraph (b) of this section.

(e) The following limitations also apply to the operation of TV 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.

(f) 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.

(g) The maximum bandwidth which will be authorized per frequency assignment is set out in the table which follows. Regardless of the maximum authorized bandwidth specified for each frequency band, the Commission reserves the right to issue a license for less than the maximum bandwidth if it

**§ 74.638**

appears that less bandwidth would be sufficient to support an applicant's intended communications.

Frequency Band (MHz)	Maximum authorized bandwidth (MHz)
1,990 to 2,110 .....	18
6,425 to 6,525 .....	25
6,875 to 7,125 .....	25
12,700 to 13,250 .....	25
17,700 to 19,700 .....	80

[45 FR 78692, Nov. 26, 1980, as amended at 48 FR 50734, Nov. 3, 1983; 49 FR 7131, Feb. 27, 1984; 49 FR 37778, Sept. 26, 1984; 50 FR 7342, Feb. 22, 1985; 50 FR 34150, Aug. 23, 1985; 50 FR 48600, Nov. 26, 1985; 52 FR 7142, Mar. 9, 1987; 58 FR 51251, Oct. 1, 1993; 68 FR 12769, Mar. 17, 2003.]

**§ 74.638 Frequency coordination.**

(a) Coordination of all frequency assignments for fixed stations in all bands above 2110 MHz, and for mobile (temporary fixed) stations in the bands 6425–6525 MHz and 17.7–19.7 GHz, will be in accordance with the procedure established in paragraph (b) of this section, except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree. Coordination of all frequency assignments for all mobile (temporary fixed) stations in all bands above 2110 MHz, except the bands 6425–6525 MHz and 17.7–19.7 GHz, will be conducted in accordance with the procedure established in paragraph (b) of this section or with the procedure in paragraph (d) of this section. Coordination of all frequency assignments for all fixed stations in the band 1990–2110 MHz will be in accordance with the procedure established in paragraph (c) of this section. Coordination of all frequency assignments for all mobile (temporary fixed) stations in the band 1990–2110 MHz will be conducted in accordance with the procedure in paragraph (d) of this section.

(b) For each frequency coordinated under this paragraph, the interference protection criteria in 47 CFR 101.105(a), (b), and (c) and the frequency usage coordination procedures in 47 CFR 101.103(d) will apply.

(c) For each frequency coordinated under this paragraph, the following frequency usage coordination procedures will apply:

(1) *General requirements.* Applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. Proposed frequency usage must be coordinated with existing licensees and applicants in the area whose facilities could affect or be affected by the new proposal in terms of frequency interference on active channels, applied-for channels, or channels coordinated for future growth. Coordination must be completed prior to filing an application for regular authorization, for major amendment to a pending application, or for major modification to a license.

(2) To be acceptable for filing, all applications for regular authorization, or major amendment to a pending application, or major modification to a license, must include a certification attesting that all co-channel and adjacent-channel licensees and applicants potentially affected by the proposed fixed use of the frequency(ies) have been notified and are in agreement that the proposed facilities can be installed without causing harmful interference to those other licensees and applicants.

(d) For each frequency coordinated under this paragraph, applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. In selecting frequencies, consideration should be given to the relative location of receive points, normal transmission paths, and the nature of the contemplated operation.

[68 FR 12770, Mar. 17, 2003, as amended at 75 FR 17061, Apr. 5, 2010]