R1D, A3E, H3E, J3E, R3E. A non-voice emission is limited to selective calling or tone-operated squelch tones to establish or continue voice communications. See §95.412 (b) and (c).

(d) An FRS unit may transmit only emission type F3E or F2D. A non-voice emission is limited to selective calling or tone-operated squelch tones to establish or continue voice communications, digital data transmission of location information or text messaging.

(e) No GMRS or CB transmitter shall employ a digital modulation or emission.

(f) No GMRS, CB or R/C transmitter shall transmit non-voice data.

(g) An LPRS station may transmit any emission type appropriate for communications in this service. Two-way voice communications, however, are prohibited.

(h) A MedRadio station may transmit any emission type appropriate for communications in this service. Voice communications, however, are prohibited.

(i) A WMTS station may transmit any emission type appropriate for communications in this service, except for video and voice. Waveforms such as electrocardiograms (ECGs) are not considered video.

(j) A MURS transmitter must transmit only emission types A1D, A2B, A2D, A3E, F2B, F1D, F2D, F3E, G3E. Emission types A3E, F3E and G3E include selective calling or tone-operated squelch tones to establish or continue voice communications. MURS transmitters are prohibited from transmitting in the continuous carrier mode.

(k) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988. Redesignated and amended at 61 FR 28769, June 6, 1996, and further redesignated and amended at 61 FR 46567, 46568, Sept. 4, 1996; 64 FR 69930, Dec. 15, 1999; 65 FR 44008, July 17, 2000; 65 FR 53190, Sept. 1, 2000; 65 FR 60877, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 68 FR 9901, Mar. 3, 2003; 69 FR 46446, Aug. 3, 2004; 74 FR 22706, May 14, 2009]

§95.632 MURS transmitter frequencies.

(a) The MURS transmitter channel frequencies are 151.820 MHz, 151.880 MHz, 151.940 MHz, 154.570 MHz, 154.600 MHz.

(b) The authorized bandwidth is 11.25 kHz on frequencies 151.820 MHz, 151.880 MHz and 151.940 MHz. The authorized bandwidth is 20.0 kHz on frequencies 154.570 and 154.600 MHz.

(c) MURS transmitters must maintain a frequency stability of 5.0 ppm, or 2.0 ppm if designed to operate with a 6.25 kHz bandwidth.

[65 FR 60877, Oct. 13, 2000, as amended at 67 FR 63289, Oct. 11, 2002]

§95.633 Emission bandwidth.

(a) The *authorized bandwidth* (maximum permissible bandwidth of a transmission) for emission type H1D, J1D, R1D, H3E, J3E or R3E is 4 kHz. The authorized bandwidth for emission type A1D or A3E is 8 kHz. The authorized bandwidth for emission type F1D, G1D, F3E or G3E is 20 kHz.

(b) The authorized bandwidth for any emission type transmitted by an R/C transmitter is 8 kHz.

(c) The authorized bandwidth for emission type F3E or F2D transmitted by a FRS unit is 12.5 kHz.

(d) For transmitters in the LPRS:

(1) The authorized bandwidth for narrowband frequencies is 4 kHz and the channel bandwidth is 5 kHz

(2) The channel bandwidth for standard band frequencies is 25 kHz.

(3) The channel bandwidth for extra band frequencies is 50 kHz.

(4) AMTS stations may use the 216.750–217.000 MHz band as a single 250 kHz channel so long as the signal is attenuated as specified in §95.635(c).

(e) For transmitters in the MedRadio Service:

(1) For stations operating in 402–405 MHz, the maximum authorized emission bandwidth is 300 kHz. For stations operating in 401–401.85 MHz or 405–406 MHz, the maximum authorized emission bandwidth is 100 kHz, and stations operating in 401.85–402 MHz, the maximum authorized emission bandwidth is 150 kHz.

(2) Lesser emission bandwidths may be employed, provided that the unwanted emissions are attenuated as provided in §95.635. *See* §§95.628(g) and 95.639(f) regarding maximum transmitter power and measurement procedures.

(3) Emission bandwidth will be determined by measuring the width of the

signal between points, one below the carrier center frequency and one above the carrier center frequency, that are 20 dB down relative to the maximum level of the modulated carrier. Compliance with the emission bandwidth limit is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

(f) The authorized bandwidth for any emission type transmitted by a MURS transmitter is specified as follows:

(1) Emissions on frequencies 151.820 MHz, 151.880 MHz, and 151.940 MHz are limited to 11.25 kHz.

(2) Emissions on frequencies 154.570 and 154.600 MHz are limited to 20.0 kHz.

(3) Provided, however, that all A3E emissions are limited to 8 kHz.

(g) DSRCS-OBUs are governed under subpart L of this part.

[53 FR 36789, Sept. 22, 1988. Redesignated and amended at 61 FR 28769, June 6, 1996, and further redesignated and amended at 61 FR 46567, 46568, Sept. 4, 1996; 64 FR 69930, Dec. 15, 1999; 65 FR 60878, Oct. 13, 2000; 67 FR 63289, Oct. 11, 2002; 68 FR 9902, Mar. 3, 2003; 69 FR 46446, Aug. 3, 2004; 74 FR 22707, May 14, 2009]

§ 95.635 Unwanted radiation.

(a) In addition to the procedures in part 2, the following requirements apply to each transmitter both with and without the connection of all attachments acceptable for use with the transmitter, such as an external speaker, microphone, power cord, antenna, etc.

(b) The power of each unwanted emission shall be less than TP as specified in the applicable paragraphs listed in the following table:

Transmitter	Emission type	Applicable paragraphs (b)
GMRS	A1D, A3E, F1D, G1D, F3E, G3E with filtering	(1), (3), (7).
	A1D, A3E, F1D, G1D, F3E, G3E without filtering	(5), (6), (7).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (7).
FRS	F3E with filtering	(1), (3), (7).
R/C:		
27 MHz	As specified in § 95.631(b)	(1), (3), (7).
72–76 MHz	As specified in § 95.631(b)	(1), (3), (7), (10), (11), (12).
CB	A1D, A3E	(1), (3), (8), (9).
	H1D, J1D, R1D, H3E, J3E, R3E	(2), (4), (8), (9).
	A1D, A3E type accepted before September 10, 1976	(1), (3), (7).
	H1D, J1D, R1D, H3E, J3E, R3E type accepted before September 10, 1986.	(2), (4), (7).
LPRS	As specified in paragraph (c).	
MedRadio	As specified in paragraph (d).	
DSRCS–OBU	As specified in paragraph (f) of this section.	

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

(2) At least 25 dB on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 150% of the authorized bandwidth.

(3) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

(4) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 150% up to and including 250% of the authorized bandwidth.

(5) At least 83 $\log_{10}$ (f_d/5) dB on any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz), of more than 5 kHz up to and including 10 kHz.

(6) At least 116 $\log_{10}$ (f_d/6.1) dB, or if less, 50 + 10 $\log_{10}$ (T) dB, on any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz), of more than 10 kHz up to and including 250% of the authorized bandwidth.

(7) At least 43 + 10 $\log_{10}$ (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.