

§ 90.209

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F3E or G3E emissions will be authorized.

(k) For radiolocation operations as may be authorized in accordance with subpart F, unless otherwise provided for any type of emission may be authorized upon a satisfactory showing of need.

(l) For stations in the Public Safety and Industrial/Business Pools utilizing digital voice modulation, in either the scrambled or unscrambled mode, F1E or G1E emission will be authorized. Authorization to use digital voice emissions is construed to include the use of F1D, F2D, G1D, or G2D emission subject to the provisions of § 90.233.

(m) For narrowband operations in a 3.6 kHz maximum authorized bandwidth, any modulation type may be used which complies with the emission limitations of § 90.209.

(n) *Other emissions.* Requests for emissions other than those listed in paragraphs (c) through (e) of this section will be considered on a case-by-case basis to ensure that the requested emission will not cause more interference than other currently permitted emissions.

[49 FR 48711, Dec. 14, 1984, as amended at 50 FR 13606, Apr. 5, 1985; 50 FR 25240, June 18, 1985; 52 FR 29856, Aug. 12, 1987; 54 FR 38681, Sept. 20, 1989; 60 FR 15252, Mar. 23, 1995; 60 FR 37263, July 19, 1995; 62 FR 2039, Jan. 15, 1997; 62 FR 18927, Apr. 17, 1997; 64 FR 36270, July 6, 1999]

§ 90.209 Bandwidth limitations.

(a) Each authorization issued to a station licensed under this part will show an emission designator representing the class of emission authorized. The designator will be prefixed by a specified necessary bandwidth. This number does not necessarily indicate the bandwidth occupied by the emission at any instant. In those cases where § 2.202 of this chapter does not provide a formula for the computation of necessary bandwidth, the occupied bandwidth, as defined in part 2 of this chapter, may be used in lieu of the necessary bandwidth.

(b) The maximum authorized single channel bandwidth of emission corresponding to the type of emission specified in § 90.207 is as follows:

(1) For A1A or A1B emissions, the maximum authorized bandwidth is 0.25 kHz. The maximum authorized bandwidth for type A3E emission is 8 kHz.

(2) For operations below 25 MHz utilizing J3E emission, the bandwidth occupied by the emission shall not exceed 3000 Hz. The assigned frequency will be specified in the authorization. The authorized carrier frequency will be 1400 Hz lower in frequency than the assigned frequency. Only upper sideband emission may be used. In the case of regularly available double sideband radiotelephone channels, an assigned frequency for J3E emissions is available either 1600 Hz below or 1400 Hz above the double sideband radiotelephone assigned frequency.

(3) For all other types of emissions, the maximum authorized bandwidth shall not be more than that normally authorized for voice operations.

(4) Where a frequency is assigned exclusively to a single licensee, more than a single emission may be used within the authorized bandwidth. In such cases, the frequency stability requirements of § 90.213 must be met for each emission.

(5) Unless specified elsewhere, channel spacings and bandwidths that will be authorized in the following frequency bands are given in the following table.

STANDARD CHANNEL SPACING/BANDWIDTH

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
Below 25 ²		
25–50	20	20
72–76	20	20
150–174	17.5	^{1,3} 20/11.25/6
216–2205	6.25	20/11.25/6 ⁵
220–222	5	4
421–512 ²	16.25	^{1,3} 20/11.25/6
806–821/851–866	25	20
821–824/866–869	12.5	20
896–901/935–940	12.5	13.6
902–928 ⁴		
929–930	25	20
1427–1432 ⁵	12.5	12.5
2450–2483.52 ²		
Above 2500 ²		

¹ For stations authorized on or after August 18, 1995.

² Bandwidths for radiolocation stations in the 420–450 MHz band and for stations operating in bands subject to this footnote will be reviewed and authorized on a case-by-case basis.

³ Operations using equipment designed to operate with a 25 kHz channel bandwidth will be authorized a 20 kHz bandwidth. Operations using equipment designed to operate with a 12.5 kHz channel bandwidth will be authorized a 11.25 kHz bandwidth. Operations using equipment designed to operate with a 6.25 kHz channel bandwidth will be authorized a 6 kHz bandwidth.

⁴ The maximum authorized bandwidth shall be 12 MHz for non-multilateration LMS operations in the band 909.75–921.75 MHz and 2 MHz in the band 902.00–904.00 MHz. The maximum authorized bandwidth for multilateration LMS operations shall be 5.75 MHz in the 904.00–909.75 MHz band; 2 MHz in the 919.75–921.75 MHz band; 5.75 MHz in the 921.75–927.25 MHz band and its associated 927.25–927.50 MHz narrowband forward link; and 8.00 MHz if the 919.75–921.75 MHz and 921.75–927.25 MHz bands and their associated 927.25–927.50 MHz and 927.50–927.75 MHz narrowband forward links are aggregated.

(6) No new applications for the 150–174 MHz and/or 421–512 MHz bands will be acceptable for filing if the applicant utilizes channels with an authorized bandwidth exceeding 11.25 kHz beginning January 13, 2004. For stations licensed or applied for prior to January 13, 2004, the licensee may transfer, assign, renew and modify the authorization consistent with the current rules. No modification applications for stations in the 150–174 MHz and/or 421–512 MHz bands that increase the station's authorized interference contour will be acceptable for filing if the applicant utilizes channels with an authorized bandwidth exceeding 11.25 kHz, beginning January 13, 2004. See § 90.187(b)(2)(iii) and (iv) of this chapter for interference contour designations and calculations. Applications submitted pursuant to this paragraph must comply with frequency coordination requirements of § 90.175 of this chapter.

[60 FR 37263, July 19, 1995, as amended at 67 FR 41860, June 20, 2002; 68 FR 42314, July 17, 2003; 68 FR 54769, Sept. 18, 2003; 69 FR 39867, July 1, 2004]

EFFECTIVE DATE NOTE: At 69 FR 17959, Apr. 6, 2004, in § 90.209, paragraph (b)(6) was stayed indefinitely.

§ 90.210 Emission masks.

Except as indicated elsewhere in this part, transmitters used in the radio services governed by this part must comply with the emission masks outlined in this section. Unless otherwise stated, per paragraphs (d)(4), (e)(4), and (m) of this section, measurements of emission power can be expressed in either peak or average values provided that emission powers are expressed with the same parameters used to specify the unmodulated transmitter

carrier power. For transmitters that do not produce a full power unmodulated carrier, reference to the unmodulated transmitter carrier power refers to the total power contained in the channel bandwidth. Unless indicated elsewhere in this part, the table in this section specifies the emission masks for equipment operating in the frequency bands governed under this part.

APPLICABLE EMISSION MASKS

Frequency band (MHz)	Mask for equipment with Audio low pass filter	Mask for equipment without audio low pass filter
Below 25 ¹	A or B	A or C
25–50	B	C
72–76	B	C
150–174 ²	B, D, or E	C, D, or E
150 Paging-only	B	C
220–222	F	F
421–512 ²	B, D, or E	C, D, or E
450 Paging-only	B	G
806–821/851–866 ³	B	G
821–824/866–869	B	H
896–901/935–940	I	J
902–928	K	K
929–930	B	G
4940–4990 MHz	L	L
5850–5925	K	K
All other bands	B	C

¹ Equipment using single sideband J3E emission must the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable.

² Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask B or C, as applicable. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D, and equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask E.

³ Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of § 90.691.

(a) *Emission Mask A.* For transmitters utilizing J3E emission, the carrier must be at least 40 dB below the peak envelope power and the power of emissions must be reduced below the output power (P in watts) of the transmitter as follows:

- (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 150 percent of the authorized bandwidth: At least 25 dB.
- (2) On any frequency removed from the assigned frequency by more than 150 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.
- (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log P dB.