

§ 87.135

47 CFR Ch. I (10–1–12 Edition)

(e) The Commission may authorize tolerances other than those specified in this section upon a satisfactory showing of need.

(f) The carrier frequency tolerance of transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands manufactured before January 2, 1985, is 0.003 percent. The carrier frequency tolerance of transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands manufactured after January 1, 1985, is 0.002 percent. After January 1, 1990, the carrier frequency tolerance of all transmitters operating in the 1435–1535 MHz and 2310–2390 MHz bands is 0.002 percent.

(g) Any aeronautical enroute service transmitter operating in U.S. controlled airspace with 8.33 kHz channel spacing (except equipment being tested by avionics equipment manufacturers and flight test stations prior to delivery to their customers for use outside U.S. controlled airspace) must achieve 0.0005% frequency stability when operating in that mode.

[53 FR 28940, Aug. 1, 1988, as amended at 56 FR 38084, Aug. 12, 1991; 57 FR 45749, Oct. 5, 1992; 58 FR 31027, May 26, 1993; 63 FR 36607, July 7, 1998; 64 FR 27474, May 20, 1999; 66 FR 26799, May 15, 2001; 69 FR 32880, June 14, 2004; 76 FR 17350, Mar. 29, 2011]

§ 87.135 Bandwidth of emission.

(a) Occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5 percent of the total mean power of a given emission.

(b) The authorized bandwidth is the maximum occupied bandwidth authorized to be used by a station.

(c) The necessary bandwidth for a given class of emission is the width of the frequency band which is just sufficient to ensure the transmission of information at the rate and with the quality required under specified conditions.

§ 87.137 Types of emission.

(a) The assignable emissions, corresponding emission designators and authorized bandwidths are as follows:

Class of emission	Emission designator	Authorized bandwidth (kilohertz)		
		Below 50 MHz	Above 50 MHz	Frequency deviation
A1A <sup>1</sup> .....	100HA1A	0.25		
A1N .....	300HA1N		0.75	
A2A .....	2K04A2A	2.74	50	
A2D .....	6K0A2D		50	
A2D <sup>5</sup> .....	13K0A2D		50	
A3E <sup>2</sup> .....	6K00A3E		50 <sup>3</sup>	
A3E .....	5K6A3E		8.33	
kHz <sup>17</sup>				
A3X <sup>4</sup> .....	3K20A3X		25	
A9W <sup>5</sup> .....	13K0A9W		25	
F1B <sup>1</sup> .....	1K70F1B	1.7		
F1B <sup>1</sup> .....	2K40F1B	2.5		
F1D <sup>18</sup> .....	1M30F1D		1300	312.5
F2D .....	5M0F2D		kHz <sup>(9)</sup>	
F3E <sup>6</sup> .....	16K0F3E		(9)	5
F3E <sup>7</sup> .....	36K0F3E		40	15
F7D <sup>8</sup> .....	5M0F7D		(9)	
F9D .....	5M0F9D		9	
G1D .....	16K0G1D		20 kHz	
G1D <sup>16</sup> .....	21K0G1D		25	
G1D .....	14K0G1D		25	
F9D .....	5M0F9D		9	
G1D .....	16K0G1D		20 kHz	
G3E <sup>6</sup> .....	16K0G3E		20	5
G7D .....	14K0G7D		25	
H2B <sup>10,11</sup> .....	2K80H2B	3.0		
H3E <sup>11,12</sup> .....	2K80H3E	3.0		
J2A <sup>1</sup> .....	100HJ2A	0.25		
J2B <sup>1</sup> .....	1K70J2B	1.7		
J2B <sup>1</sup> .....	2K40J2B	2.5		
J3E <sup>11,12</sup> .....	2K80J3E	3.0		
J7B <sup>11</sup> .....	2K80J7B	3.0		
J7D .....	5M0J7D		(9)	
J9W <sup>11</sup> .....	2K80J9W	3.0		
M1A .....	620HM1A			
NON .....	NON		None <sup>15</sup>	
PON <sup>13</sup> .....	(9)		(9)	
R3E <sup>11,12</sup> .....	2K80R3E	3.0		
XXA <sup>14</sup> .....	1K12XXA	2.74		

NOTES:

<sup>1</sup> A1A, F1B, J2A and J2B are permitted provided they do not cause harmful interference to H2B, J3E, J7B and J9W.

<sup>2</sup> For use with an authorized bandwidth of 8.0 kilohertz at radiobeacon stations. A3E will not be authorized:

(i) At existing radiobeacon stations that are not authorized to use A3 and at new radiobeacon stations unless specifically recommended by the FAA for safety purposes.

(ii) At existing radiobeacon stations currently authorized to use A3, subsequent to January 1, 1990, unless specifically recommended by the FAA for safety purposes.

<sup>3</sup> In the band 117.975–136 MHz, the authorized bandwidth is 25 kHz for transmitters approved after January 1, 1974.

<sup>4</sup> Applicable only to Survival Craft Stations and to the emergency locator transmitters and emergency locator transmitter test stations employing modulation in accordance with that specified in § 87.141 of the Rules. The specified bandwidth and modulation requirements shall apply to emergency locator transmitters for which approval is granted after October 21, 1973.

<sup>5</sup> This emission may be authorized for audio frequency shift keying and phase shift keying for digital data links on any frequency listed in § 87.263(a)(1), § 87.263(a)(3) or § 87.263(a)(5). 13K0A2D emission may be authorized on frequencies not used for voice communications. If the channel is used for voice communications, 13K0A9W emission may be authorized, provided the data is multiplexed on the voice carrier without derogating voice communications.

<sup>6</sup> Applicable to operational fixed stations in the bands 72.0–73.0 MHz and 75.4–76.0 MHz and to CAP stations using F3 on 143.900 MHz and 148.150 MHz.

<sup>7</sup> Applicable to operational fixed stations presently authorized in the band 73.0–74.6 MHz.