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(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.

<table>
<thead>
<tr>
<th>STANDARD CHANNEL SPACING/BANDWIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency band (MHz)</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Below 25 5.</td>
</tr>
<tr>
<td>25–50</td>
</tr>
<tr>
<td>72–76</td>
</tr>
<tr>
<td>150–174</td>
</tr>
<tr>
<td>216–220</td>
</tr>
<tr>
<td>220–222</td>
</tr>
<tr>
<td>406–512</td>
</tr>
<tr>
<td>806–809/851–864</td>
</tr>
<tr>
<td>809–824/864–869</td>
</tr>
<tr>
<td>869–901/935–940</td>
</tr>
<tr>
<td>902–928</td>
</tr>
<tr>
<td>929–930</td>
</tr>
<tr>
<td>1427–1432</td>
</tr>
<tr>
<td>Above 2500</td>
</tr>
</tbody>
</table>

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. All stations must operate on channels with a bandwidth of 12.5 kHz or less beginning January 1, 2013, unless the operations meet the efficiency standard of §90.203(j)(3).

4 The maximum authorized bandwidth shall be 12 MHz for non-multilateration LMS operations in the bands 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 904.00–906.75 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.

5 See §90.259.

6(ii) Beginning January 1, 2011, 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, unless specified elsewhere or the operations meet the efficiency standards of §90.203(j)(3).

(ii) Beginning January 1, 2011, 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, unless specified elsewhere or the operations meet the efficiency standards of §90.203(j)(3). See §90.187(b)(2)(iii) and (iv) for interference contour designations and calculations. Applications submitted pursuant to this paragraph must comply with frequency coordination requirements of §90.175.


§ 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

<table>
<thead>
<tr>
<th>Frequency band (MHz)</th>
<th>Mask for equipment with Audio low pass filter</th>
<th>Mask for equipment without audio low pass filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 251</td>
<td>A or B</td>
<td>A or C</td>
</tr>
<tr>
<td>25–50</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>72–76</td>
<td>B</td>
<td>C, D, or E</td>
</tr>
<tr>
<td>150–1742</td>
<td>B, D, or E</td>
<td>C, D, or E</td>
</tr>
<tr>
<td>150 Paging-only</td>
<td>B</td>
<td>C, D, or E</td>
</tr>
<tr>
<td>220–222</td>
<td>B, D, or E</td>
<td>C</td>
</tr>
<tr>
<td>421–512</td>
<td>B, D, or E</td>
<td>F, D, or E</td>
</tr>
<tr>
<td>450 Paging-only</td>
<td>B</td>
<td>C, D, or E</td>
</tr>
<tr>
<td>806–809/851–854</td>
<td>B</td>
<td>H, D</td>
</tr>
<tr>
<td>809–824/854–869</td>
<td>B</td>
<td>G</td>
</tr>
<tr>
<td>896–901/935–940</td>
<td>I</td>
<td>J</td>
</tr>
<tr>
<td>902–928</td>
<td>K</td>
<td>K</td>
</tr>
<tr>
<td>929–930</td>
<td>B</td>
<td>G</td>
</tr>
<tr>
<td>4940–4990 MHz</td>
<td>L or M</td>
<td>L or M.</td>
</tr>
<tr>
<td>5800–5925 MHz</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>All other bands</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

1. Equipment using single sideband J3E emission must meet 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 B and Equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask C.
3. Equipment used in this licensed 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.

**(b) Emission Mask B**

For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

1. On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.
2. On any frequency removed from the assigned frequency by more than 100 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.

**(c) Emission Mask C**

For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier output power (P) as follows:

1. On any frequency removed from the center of the authorized bandwidth by a displacement frequency ($f_d$ in kHz) of more than 5 kHz, but not more than 10 kHz: At least $83 \log (f_d)$ dB; or
2. On any frequency removed from the center of the authorized bandwidth by a displacement frequency ($f_d$ in kHz) of more than 10 kHz, but not more than 250 percent of the authorized bandwidth: At least $29 \log (f_d)+11$ dB or 50 dB, whichever is the lesser attenuation.

**(d) Emission Mask D**

12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

1. On any frequency from the center of the authorized bandwidth $f_c$ to 5.625 kHz removed from $f_c$: Zero dB.
2. On any frequency removed from the center of the authorized bandwidth by a displacement frequency ($f_d$ in kHz)
of more than 5.625 kHz but no more than 12.5 kHz: At least 7.27(f_d - 2.88 kHz) dB.

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two to three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (m) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, then an alternate procedure may be used provided prior Commission approval is obtained.

(e) Emission Mask E—6.25 kHz or less channel bandwidth equipment. For transmitters designed to operate with a 6.25 kHz or less bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_o to 3.0 kHz removed from f_o: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 3.0 kHz but no more than 4.6 kHz: At least 30 + 20(f_d - 2) dB or 55 + 10 log (P) dB, whichever is the lesser attenuation.

(3) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two to three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (m) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, then an alternate procedure may be used provided prior Commission approval is obtained.

(f) Emission Mask F. For transmitters operating in the 220–222 MHz frequency band, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_o to the edge of the authorized bandwidth f_e: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(3) On any frequency beyond 3.75 kHz removed from the center of the authorized bandwidth f_d: At least 55 + 10 log (P) dB.

(g) Emission Mask G. For transmitters that are not equipped with an audio low-pass filter, the power of any emission that is not modulated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(2) On any frequency removed from the center of the authorized bandwidth by more than 3.75 kHz but no more than 4.6 kHz: At least 30 + 16.67(f_d - 3 kHz) dB or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(3) On any frequency removed from the center of the authorized bandwidth by more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two to three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (m) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, then an alternate procedure may be used provided prior Commission approval is obtained.

(5) Emission Mask H. For transmitters operating in the 622–625 MHz frequency band, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_o to the edge of the authorized bandwidth f_e: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(3) On any frequency beyond 3.75 kHz removed from the center of the authorized bandwidth f_d: At least 55 + 10 log (P) dB.

(h) Emission Mask I. For transmitters that are not equipped with an audio low-pass filter, the power of any emission that is not modulated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(2) On any frequency removed from the center of the authorized bandwidth by more than 3.75 kHz but no more than 4.6 kHz: At least 30 + 16.67(f_d - 3 kHz) dB or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(3) On any frequency removed from the center of the authorized bandwidth by more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(4) The reference level for showing compliance with the emission mask shall be established using a resolution bandwidth sufficiently wide (usually two to three times the channel bandwidth) to capture the true peak emission of the equipment under test. In order to show compliance with the emission mask up to and including 50 kHz removed from the edge of the authorized bandwidth, adjust the resolution bandwidth to 100 Hz with the measuring instrument in a peak hold mode. A sufficient number of sweeps must be measured to insure that the emission profile is developed. If video filtering is used, its bandwidth must not be less than the instrument resolution bandwidth. For emissions beyond 50 kHz from the edge of the authorized bandwidth, see paragraph (m) of this section. If it can be shown that use of the above instrumentation settings do not accurately represent the true interference potential of the equipment under test, then an alternate procedure may be used provided prior Commission approval is obtained.

(i) Emission Mask J. For transmitters operating in the 1200–1225 MHz frequency band, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(1) On any frequency from the center of the authorized bandwidth f_o to the edge of the authorized bandwidth f_e: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.

(3) On any frequency beyond 3.75 kHz removed from the center of the authorized bandwidth f_d: At least 55 + 10 log (P) dB.

(j) Emission Mask K. For transmitters that are not equipped with an audio low-pass filter, the power of any emission that is not modulated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by more than 4.6 kHz: At least 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(2) On any frequency removed from the center of the authorized bandwidth by more than 3.75 kHz but no more than 4.6 kHz: At least 30 + 16.67(f_d - 3 kHz) dB or 55 + 10 log (P) or 65 dB, whichever is the lesser attenuation.

(3) On any frequency removed from the center of the authorized bandwidth by more than 2 kHz up to and including 3.75 kHz: 30 + 20(f_d - 2) dB or 55 + 10 log (P), or 65 dB, whichever is the lesser attenuation.
by a displacement frequency \( f_d \) in kHz of more than 10 kHz, but no more than 250 percent of the authorized bandwidth: At least 116 log \( f_d/6.1 \) dB, or 50 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation;
(2) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(h) Emission Mask H. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:
(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of 4 kHz or less: Zero dB;
(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 4 kHz, but no more than 8.5 kHz: At least 107 log \( f_d/4 \) dB;
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 8.5 kHz, but no more than 15 kHz: At least 40.5 log \( f_d/1.16 \) dB;
(4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 15 kHz, but no more than 25 kHz: At least 116 log \( f_d/6.1 \) dB;
(5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least 43 + log (P) dB.

(i) Emission Mask I. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:
(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of 6.8 kHz or less, but no more than 9.0 kHz: At least 35 dB;
(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 9.0 kHz, but no more than 15 kHz: At least 35 dB;
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency of more than 15 kHz: At least 43 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation.

(j) Emission Mask J. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:
(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 2.5 kHz, but no more than 6.25 kHz: At least 53 log \( f_d/2.5 \) dB;
(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 6.25 kHz, but no more than 9.5 kHz: At least 103 log \( f_d/3.9 \) dB;
(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency \( f_d \) in kHz of more than 9.5 kHz, but no more than 15 kHz: At least 157 log \( f_d/5.3 \) dB, or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(k) Emission Mask K—(1) Wideband multilateration transmitters. For transmitters authorized under subpart M to provide forward or reverse links in a multilateration system in the subbands 904–909.75 MHz, 921.75–927.25 MHz and 919.75–921.75 MHz, and which transmit an emission occupying more than 50 kHz bandwidth: In any 100 kHz band, the center frequency of which is removed from the center of authorized sub-band(s) by more than 50 percent of the authorized bandwidth, the power of emissions shall be attenuated below the transmitter output power, as specified by the following equation, but in no case less than 31 dB:
\[
A = 16 + 0.4(D - 50) + 10 \log B \quad \text{(attenuation greater than 66 dB is not required)}
\]
Where:
\[
A = \text{attenuation (in decibels) below the maximum permitted output power level}
D = \text{displacement of the center frequency of the measurement bandwidth from the center frequency of the authorized sub-band, expressed as a percentage of the authorized bandwidth B}
B = \text{authorized bandwidth in megahertz}
\]
(2) Narrowband forward link transmitters. For LMS multilateration narrowband forward link transmitters operating in the 927.25–928 MHz frequency band the power of any emission...
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shall be attenuated below the transmitter output power (P) in accordance with following schedule:

On any frequency outside the authorized sub-band and removed from the edge of the authorized sub-band by a displacement frequency (f_d in kHz): at least 116 log ((f_d +10)/6.1) dB or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

(3) Other transmitters. For all other transmitters authorized under subpart M that operate in the 902-928 MHz band, the peak power of any emission shall be attenuated below the power of the highest emission contained within the licensee's sub-band in accordance with the following schedule:

(i) On any frequency within the authorized bandwidth: Zero dB.

(ii) On any frequency outside the licensee's sub-band edges: 55 + 10 log(P) dB, where (P) is the highest emission (watts) of the transmitter inside the licensee's sub-band.

(4) In the 902-928 MHz band, the resolution bandwidth of the instrumentation used to measure the emission power shall be 100 kHz, except that, in regard to paragraph (2) of this section, a minimum spectrum analyzer resolution bandwidth of 300 Hz shall be used for measurement center frequencies with 1 MHz of the edge of the authorized subband. The video filter bandwidth shall not be less than the resolution bandwidth.

(5) Emission power shall be measured in peak values.

(6) The LMS sub-band edges for non-multilateration systems for which emissions must be attenuated are 902.00, 904.00, 909.5 and 921.75 MHz.

(l) Emission Mask L. For low power transmitters (20 dBm or less) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(i) On any frequency removed from the assigned frequency between 0-45% of the authorized bandwidth (BW): 0 dB.

(ii) On any frequency removed from the assigned frequency between 45-50% of the authorized bandwidth: 219 log (% of (BW)/45) dB.

(iii) On any frequency removed from the assigned frequency between 50-55% of the authorized bandwidth: 202 log (% of (BW)/50) dB.

(iv) On any frequency removed from the assigned frequency between 55-100% of the authorized bandwidth: 20 + 31 log (% of (BW)/50) dB attenuation.

(v) On any frequency removed from the assigned frequency between 100-150% of the authorized bandwidth: 28 + 68 log (% of (BW)/100) dB attenuation.

(vi) On any frequency removed from the assigned frequency above 150% of the authorized bandwidth: 40 dB.

(vii) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 kHz. The power spectral density is the power measured within the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

(m) Emission Mask M. For high power transmitters (greater that 20 dBm) operating in the 4940-4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(i) On any frequency removed from the assigned frequency between 0-45% of the authorized bandwidth (BW): 0 dB.

(ii) On any frequency removed from the assigned frequency between 45-50% of the authorized bandwidth: 568 log (% of (BW)/45) dB.

(iii) On any frequency removed from the assigned frequency between 50-55% of the authorized bandwidth: 26 + 145 log (% of BW/50) dB.

(iv) On any frequency removed from the assigned frequency between 55-100% of the authorized bandwidth: 32 + 31 log (% of (BW)/55) dB.

(v) On any frequency removed from the assigned frequency between 100-150% of the authorized bandwidth: 40 + 57 log (% of (BW)/100) dB.
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§ 90.213 Frequency stability.

(a) Unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table.

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-174 MHz</td>
<td>100 kHz</td>
</tr>
<tr>
<td>421-512 MHz</td>
<td>150 kHz</td>
</tr>
<tr>
<td>Above 1000 MHz</td>
<td>1 MHz</td>
</tr>
</tbody>
</table>