



7. Radio Frequency Exposure

7.1 Applicable Standards

<input type="checkbox"/> §1.1307(b)(3)(i)(A)	The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.																																			
<input type="checkbox"/> §1.1307(b)(3)(i)(c)	<p>ERP is below a threshold calculated based on the distance , R between the person and t antenna / radiating structure, where $R > \lambda / 2 \pi$.</p> <p style="text-align: center;">TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">RF Source Frequency</th> <th colspan="2">Minimum Distance</th> <th>Threshold ERP</th> </tr> <tr> <th>f_L MHz</th> <th>f_H MHz</th> <th>$\lambda_L / 2\pi$</th> <th>$\lambda_H / 2\pi$</th> <th>W</th> </tr> </thead> <tbody> <tr> <td>0.3</td> <td>1.34</td> <td>159 m</td> <td>35.6 m</td> <td>1,920 R²</td> </tr> <tr> <td>1.34</td> <td>30</td> <td>35.6 m</td> <td>1.6 m</td> <td>3,450 R²/f²</td> </tr> <tr> <td>30</td> <td>300</td> <td>1.6 m</td> <td>159 mm</td> <td>3.83 R²</td> </tr> <tr> <td>300</td> <td>1,500</td> <td>159 mm</td> <td>31.8 mm</td> <td>0.0128 R²f</td> </tr> <tr> <td>1,500</td> <td>100,000</td> <td>31.8 mm</td> <td>0.5 mm</td> <td>19.2R²</td> </tr> </tbody> </table> <p>Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.</p>	RF Source Frequency		Minimum Distance		Threshold ERP	f_L MHz	f_H MHz	$\lambda_L / 2\pi$	$\lambda_H / 2\pi$	W	0.3	1.34	159 m	35.6 m	1,920 R ²	1.34	30	35.6 m	1.6 m	3,450 R ² /f ²	30	300	1.6 m	159 mm	3.83 R ²	300	1,500	159 mm	31.8 mm	0.0128 R ² f	1,500	100,000	31.8 mm	0.5 mm	19.2R ²
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<input checked="" type="checkbox"/> § 1.1307(b)(3)(i)(B).	<p>Device operates between 300 MHz and 6 GHz and the maximum time-averaged power or effective radiated power (ERP), whichever is greater, $\leq P_{th}$</p> $P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$ <p>Where</p> $x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$ <p>and</p> $ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$ <p>d = the separation distance (cm);</p>																																			



7.2 EUT Specification

Frequency band (Operating)	2400MHz ~ 2483.5MHz
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation)
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Evaluation applied	<input type="checkbox"/> Blanket 1 mW Blanket Exemption <input type="checkbox"/> MPE-based Exemption <input checked="" type="checkbox"/> SAR-based Exemption
Remark: The maximum conducted output power is <u>79.62dBuV/m</u> at <u>2417MHz</u> (with <u>3.53dBi</u> antenna gain.)	

7.3 Result

Channel Frequency (MHz)	Fundamental Emission (dBm)	Max. Tune up power (dBm)	Max. Tune up power(mW)	Distance (mm)	SAR test exclusion thresholds (mW)
2417	-19.14	-18.64	0.0137	5	2.77

Antenna Gain (dBi)	Antenna Gain (linear)	Distance (m)	Fundamental Emission (dBuV/m)	Fundamental Emission (V/m)	Fundamental Emission (W)	Fundamental Emission (dBm)
3.53	2.25	3	79.62	0.0096	0.0000122	-19.14

No non-compliance noted.

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