



## 12. Radio Frequency Exposure

### 12.1 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 the antenna / radiating structure, where <math>R &gt; \lambda / 2\pi</math>.</p> <p style="text-align: center;">TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">RF Source Frequency <math>f_L</math> MHz</th> <th style="text-align: center;">RF Source Frequency <math>f_H</math> MHz</th> <th style="text-align: center;">Minimum Distance <math>\lambda_L / 2\pi</math></th> <th style="text-align: center;">Minimum Distance <math>\lambda_H / 2\pi</math></th> <th style="text-align: center;">Threshold ERP W</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.3</td> <td style="text-align: center;">—</td> <td style="text-align: center;">159 m</td> <td style="text-align: center;">—</td> <td style="text-align: center;">1,920 <math>R^2</math></td> </tr> <tr> <td style="text-align: center;">1.34</td> <td style="text-align: center;">—</td> <td style="text-align: center;">35.6 m</td> <td style="text-align: center;">—</td> <td style="text-align: center;">3,450 <math>R^2/f^2</math></td> </tr> <tr> <td style="text-align: center;">30</td> <td style="text-align: center;">—</td> <td style="text-align: center;">1.6 m</td> <td style="text-align: center;">—</td> <td style="text-align: center;">3.83 <math>R^2</math></td> </tr> <tr> <td style="text-align: center;">300</td> <td style="text-align: center;">—</td> <td style="text-align: center;">159 mm</td> <td style="text-align: center;">—</td> <td style="text-align: center;">0.0128 <math>R^2/f</math></td> </tr> <tr> <td style="text-align: center;">1,500</td> <td style="text-align: center;">—</td> <td style="text-align: center;">31.8 mm</td> <td style="text-align: center;">—</td> <td style="text-align: center;">19.2 <math>R^2</math></td> </tr> <tr> <td colspan="5" style="text-align: center;">Subscripts L and H are low and high; <math>\lambda</math> is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.</td></tr> </tbody> </table>	RF Source Frequency $f_L$ MHz	RF Source Frequency $f_H$ MHz	Minimum Distance $\lambda_L / 2\pi$	Minimum Distance $\lambda_H / 2\pi$	Threshold ERP W	0.3	—	159 m	—	1,920 $R^2$	1.34	—	35.6 m	—	3,450 $R^2/f^2$	30	—	1.6 m	—	3.83 $R^2$	300	—	159 mm	—	0.0128 $R^2/f$	1,500	—	31.8 mm	—	19.2 $R^2$	Subscripts L and H are low and high; $\lambda$ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.				
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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, <math>\leq P_{th}</math></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><math>d</math> = the separation distance (cm);</p>																																			



## 12.2 EUT Specification

Frequency band (Operating)	<input type="checkbox"/> WLAN: 2412MHz ~ 2462MHz <input type="checkbox"/> WLAN: 5150MHz ~ 5250MHz <input type="checkbox"/> WLAN: 5250MHz ~ 5350MHz <input type="checkbox"/> WLAN: 5470MHz ~ 5725MHz <input type="checkbox"/> WLAN: 5725MHz ~ 5850MHz <input checked="" type="checkbox"/> Bluetooth: 2402MHz ~ 2480MHz
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 <ul style="list-style-type: none"> <li><input type="checkbox"/> Tx diversity</li> <li><input type="checkbox"/> Rx diversity</li> <li><input type="checkbox"/> Tx/Rx diversity</li> </ul>
Evaluation applied	<input type="checkbox"/> Blanket 1 mW Blanket Exemption <input type="checkbox"/> MPE-based Exemption <input checked="" type="checkbox"/> SAR-based Exemption
<b>Remark:</b>	The maximum conducted output power is <u>-0.72dBm (0.847mW)</u> at <u>2402MHz</u> (with <u>0.5dBi antenna gain</u> .)

## 12.3 Result

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Max. Tune up power (mW)	Antenna Gain(dBi)	Max.Tune up e.i.r.p. Power (dBm)	Max.Tune up e.r.p. Power (dBm)	Max.Tune up e.r.p. Power (mW)	Distance (mm)	SAR test exclusion thresholds (mW)
2402-2480	-0.72	-0.22	0.95	0.50	0.28	-1.87	0.65	5	2.72

No non-compliance noted.

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