12. Radio Frequency Exposure

12.1 Applicable Standards

<table>
<tr><td>☐
§1.1307(b)(3)(i)(A)</td><td>The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.</td></tr>
<tr><td>☐
§1.1307(b)(3)(i)(c)</td><td>ERP is below a threshold calculated based on the distance , R between the person and t

antenna / radiating structure, where R > λ / 2 π .

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION
<table>
<tr><th colspan="3">RF Source Frequency</th><th colspan="3">Minimum Distance</th><th>Threshold ERP</th></tr>
<tr><td>f_L MHz</td><td></td><td>f_H MHz</td><td>$\lambda_L / 2\pi$</td><td></td><td>$\lambda_H / 2\pi$</td><td>W</td></tr>
<tr><td>0.3</td><td>–</td><td>1.34</td><td>159 m</td><td>–</td><td>35.6 m</td><td>1,920 R²</td></tr>
<tr><td>1.34</td><td>–</td><td>30</td><td>35.6 m</td><td>–</td><td>1.6 m</td><td>3,450 R²/f²</td></tr>
<tr><td>30</td><td>–</td><td>300</td><td>1.6 m</td><td>–</td><td>159 mm</td><td>3.83 R²</td></tr>
<tr><td>300</td><td>–</td><td>1,500</td><td>159 mm</td><td>–</td><td>31.8 mm</td><td>0.0128 R²f</td></tr>
<tr><td>1,500</td><td>–</td><td>100,000</td><td>31.8 mm</td><td>–</td><td>0.5 mm</td><td>19.2R²</td></tr>
<tr><td colspan="7">Subscripts L and H are low and high; λ is wavelength.
From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.</td></tr>
</table></td></tr>
<tr><td>☒
§ 1.1307(b)(3)(i)(B).</td><td>Device operates between 300 MHz and 6 GHz and the maximum time-averaged power or effective radiated power (ERP), whichever is greater, <= Pth

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right)$$ and f is in GHz;

and

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

d = the separation distance (cm);</td></tr>
</table>

12.2 EUT Specification

Frequency band (Operating)	☐ WLAN: 2412MHz ~ 2462MHz ☐ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☐ WLAN: 5725MHz ~ 5850MHz ☒ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Evaluation applied	☐ Blanket 1 mW Blanket Exemption ☒ MPE-based Exemption ☐ SAR-based Exemption
Remark: The maximum conducted output power is 18.29dBm (67.453mW) at 2402MHz (with 2.935dBi antenna gain.)	

12.3 Result

Maximum Permissible Exposure

Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Max.Tune up e.r.p. Power (dBm)	Max. Tune up e.r.p power (mW)	Limit (mW)
2402	18.29	18.79	2.935	19.58	90.68	3060

Maximum Permissible Exposure (Co-location)

BLE+2.4G

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain(dBi)	Distance (cm)	Max. Tune up e.r.p power (mW)	Limit (mW)	MPE Ratio
GFSK(1Mbps)	2402	18.29	18.79	2.935	20	90.68	3060	0.030
11b	2437	22.65	23.15	2.935	20	247.46	3060	0.081
Co-location Total								0.111
∑MPE ratios Limit								1

BLE+5G

Modulation Type	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain(dBi)	Distance (cm)	Max. Tune up e.r.p power (mW)	Limit (mW)	MPE Ratio
GFSK(1Mbps)	2402	18.29	18.79	2.935	20	90.678	3060.000	0.030
11ax HE20	5260	23.47	23.97	6.33	20	652.529	3060.000	0.213
Co-location Total								0.393
∑MPE ratios Limit								1

----------THE END OF REPORT----------