



12. Radio Frequency Exposure

12.1.Applicable Standards

☐ §1.1307(b)(3)(i)(A)	The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.																																																
☐ §1.1307(b)(3)(i)(c)	ERP is below a threshold calculated based on the distance , R between the person and t antenna / radiating structure, where $R > \lambda / 2 \pi$. TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION <table><tr><th colspan="3">RF Source Frequency</th><th colspan="2">Minimum Distance</th><th>Threshold ERP</th></tr><tr><th>f_L MHz</th><th></th><th>f_H MHz</th><th>$\lambda_L / 2\pi$</th><th></th><th>$\lambda_H / 2\pi$</th><th>W</th></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></table> Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.	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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☒ § 1.1307(b)(3)(i)(B).	Device operates between 300 MHz and 6 GHz and the maximum time-averaged power or effective radiated power (ERP), whichever is greater, $\leq P_{th}$ $P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$ Where $x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$ and $ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$ d = the separation distance (cm);																																																

**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	SISO ☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity MIMO ☐ 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: ESY10I1E: The maximum conducted output power is <u>19.51dBm (89.265 mW)</u> at <u>5260MHz</u> (with <u>2.44 dBi antenna gain.</u>) ESY15I1E: The maximum conducted output power is <u>19.28dBm (84.711 mW)</u> at <u>5260MHz</u> (with <u>2.69dBi antenna gain.</u>) ESY22I1E: The maximum conducted output power is <u>19.31dBm (85.381 mW)</u> at <u>5260MHz</u> (with <u>2.34dBi antenna gain.</u>)	

**12.3.Result**

ESY10I1E

ANT A

Modulation Type	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)
11a	5180-5240	18.21	18.71	2.46	19.02	79.80	3060
11a	5260-5320	15.30	15.80	2.19	15.84	38.37	3060
11a	5500-5720	16.02	16.52	2.70	17.07	50.93	3060
11a	5745-5825	15.59	16.09	2.70	16.64	46.13	3060

ANT B

Modulation Type	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)
11a	5180-5240	19.05	19.55	2.22	19.62	91.62	3060
11a	5260-5320	17.95	18.45	2.44	18.74	74.82	3060
11a	5500-5720	17.50	18.00	2.38	18.23	66.53	3060
11a	5745-5825	17.54	18.04	2.56	18.45	69.98	3060

ANT A, B

Modulation Type	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)
11ax20	5180-5240	18.07	18.57	2.46	18.88	77.19	3060
11ax20	5260-5320	19.51	20.01	2.44	20.30	107.07	3060
11ax40	5500-5720	17.82	18.32	2.7	18.87	77.04	3060
11ax20	5745-5825	16.24	16.74	2.7	17.29	53.55	3060

No non-compliance noted.



ESY1511E

ANT A

Modulation Type	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)
11a	5180-5240	18.20	18.70	2.44	18.99	79.25	3060
11a	5260-5320	15.27	15.77	1.86	15.48	35.32	3060
11a	5500-5720	16.01	16.51	2.83	17.19	52.36	3060
11a	5745-5825	15.40	15.90	2.63	16.38	43.45	3060

ANT B

Modulation Type	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)
11a	5180-5240	19.09	19.59	2.65	20.09	102.09	3060
11a	5260-5320	18.06	18.56	2.69	19.10	81.28	3060
11a	5500-5720	17.53	18.03	2.79	18.67	73.62	3060
11a	5745-5825	17.57	18.07	2.79	18.71	74.30	3060

ANT A, B

Modulation Type	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)
11ax20	5180-5240	18.09	18.59	2.65	19.09	81.04	3060
11ax20	5260-5320	19.28	19.78	2.69	20.32	107.63	3060
11ax40	5500-5720	17.91	18.41	2.83	19.09	81.09	3060
11ax20	5745-5825	16.32	16.82	2.79	17.46	55.69	3060

No non-compliance noted.



ESY2211E

ANT A

Modulation Type	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)
11a	5180-5240	18.23	18.73	1.75	18.33	68.08	3060
11a	5260-5320	15.35	15.85	2.34	16.04	40.18	3060
11a	5500-5720	16.03	16.53	2.25	16.63	46.03	3060
11a	5745-5825	15.63	16.13	2.65	16.63	46.03	3060

ANT B

Modulation Type	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)
11a	5180-5240	18.05	18.55	2.17	18.57	71.94	3060
11a	5260-5320	14.55	15.05	2.17	15.07	32.14	3060
11a	5500-5720	16.58	17.08	2.35	17.28	53.46	3060
11a	5745-5825	17.23	17.73	2.42	18.00	63.10	3060

ANT A, B

Modulation Type	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)
11ax20	5180-5240	18.06	18.56	2.17	18.58	72.11	3060
11ax20	5260-5320	19.31	19.81	2.34	20.00	100.08	3060
11ax40	5500-5720	17.77	18.27	2.35	18.47	70.29	3060
11ax20	5745-5825	16.17	16.67	2.65	17.17	52.13	3060

No non-compliance noted.

**Maximum Permissible Exposure (Co-location)**

For ESY10I1E
Co-Located (BT+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	Pass
GFSK	2402-2480	15.37	15.87	2.01	20	37.41	3060.00	0.01	
11ax HE20	5260-5320	19.51	20.01	2.44	20	107.07	3060.00	0.03	
Co-location Total							---	0.04	
Σ MPE ratios Limit							---	1.00	

For ESY15I1E
Co-Located (BT+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	Pass
GFSK	2402-2480	15.51	16.01	2.72	20	45.50	3060.00	0.01	
11ax HE20	5260-5320	19.28	19.78	2.69	20	107.63	3060.00	0.04	
Co-location Total							---	0.05	
Σ MPE ratios Limit							---	1.00	

For ESY22I1E
Co-Located (BT+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	Pass
GFSK	2402-2480	15.69	16.19	2.32	20	43.25	3060.00	0.01	
11ax20	5260-5320	19.31	19.81	2.34	20	100.08	3060.00	0.03	
Co-location Total							---	0.04	
Σ MPE ratios Limit							---	1.00	

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