

Appendix B. Maximum Permissible Exposure

1. Maximum Permissible Exposure

1.1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby that distance of at least 0.2 m is normally maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

1.3. Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure
For 2.4GHz Function

Antenna Type : Printed Antenna

<1Mbps, Ant. 2 >

Conducted Power for IEEE 802.11b : 23.08 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	3.98	2.5003	23.0800	203.2357	0.101146	1	Complies

Conducted Power for IEEE 802.11b : 26.24 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	3.51	2.2439	26.2400	420.7266	0.187910	1	Complies

Conducted Power for IEEE 802.11b : 24.02 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.30	2.1380	24.0200	252.3481	0.107387	1	Complies

Antenna Type : Printed Antenna

<1Mbps, 1S3T, CDD >

Conducted Power for IEEE 802.11b : 26.54 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	4.06	2.5468	26.5353	450.3251	0.228285	1	Complies

Conducted Power for IEEE 802.11b : 29.94 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	4.12	2.5823	29.9365	985.4820	0.506523	1	Complies

Conducted Power for IEEE 802.11b : 26.87 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.89	2.4491	26.8688	486.2728	0.237045	1	Complies

Antenna Type : Printed Antenna

<6Mbps, Ant. 2 >

Conducted Power for IEEE 802.11g : 17.64 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	3.98	2.5003	17.6400	58.0764	0.028903	1	Complies

Conducted Power for IEEE 802.11g : 24.68 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	3.51	2.2439	24.6800	293.7650	0.131205	1	Complies

Conducted Power for IEEE 802.11g : 19.20 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.30	2.1380	19.2000	83.1764	0.035396	1	Complies

Antenna Type : Printed Antenna

<6Mbps, 1S3T, CDD >

Conducted Power for IEEE 802.11g : 19.69 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	4.06	2.5468	19.6941	93.1987	0.047245	1	Complies

Conducted Power for IEEE 802.11g : 29.60 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	4.12	2.5823	29.6014	912.2981	0.468907	1	Complies

Conducted Power for IEEE 802.11g : 21.27 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.89	2.4491	21.2650	133.8138	0.065231	1	Complies

Antenna Type : Printed Antenna

<MCS0, Ant. 2>

Conducted Power for IEEE 802.11n 20MHz : 16.56 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	3.98	2.5003	16.5600	45.2898	0.022540	1	Complies

Conducted Power for IEEE 802.11n 20MHz : 23.04 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	3.51	2.2439	23.0400	201.3724	0.089939	1	Complies

Conducted Power for IEEE 802.11n 20MHz : 19.05dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.30	2.1380	19.0500	80.3526	0.034194	1	Complies

Antenna Type : Printed Antenna

<MCS0, 1S3T, CDD >

Conducted Power for IEEE 802.11n 20MHz : 18.35 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2412	4.06	2.5468	18.3482	68.3623	0.034655	1	Complies

Conducted Power for IEEE 802.11n 20MHz : 28.39 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	4.12	2.5823	28.3897	690.1898	0.354747	1	Complies

Conducted Power for IEEE 802.11n 20MHz : 20.50 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2462	3.89	2.4491	20.4984	112.1606	0.054675	1	Complies

Antenna Type : Printed Antenna

<MCS0, Ant. 2>

Conducted Power for IEEE 802.11n 40MHz : 11.94 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2422	3.86	2.4322	11.9400	15.6315	0.007567	1	Complies

Conducted Power for IEEE 802.11n 40MHz : 18.79 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	3.51	2.2439	18.7900	75.6833	0.033803	1	Complies

Conducted Power for IEEE 802.11n 40MHz : 17.24 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2452	3.40	2.1878	17.2400	52.9663	0.023065	1	Complies

Antenna Type : Printed Antenna

<MCS0, 1S3T, CDD >

Conducted Power for IEEE 802.11n 40MHz : 15.04 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2422	4.14	2.5942	15.0416	31.9269	0.016486	1	Complies

Conducted Power for IEEE 802.11n 40MHz : 20.72 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2437	4.12	2.5823	20.7215	118.0720	0.060687	1	Complies

Conducted Power for IEEE 802.11n 40MHz : 18.78 dBm

Test Mode	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	2452	3.97	2.4946	18.7760	75.4390	0.037458	1	Complies

For 5GHz Band:

<Ant. 1 > Antenna Type : PCB Antenna

<6Mbps, Ant. 1 >

Conducted Power for IEEE 802.11a : 17.39 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5180	3.82	2.4099	17.3900	54.8277	0.026300	1	Complies

Conducted Power for IEEE 802.11a : 17.64 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5200	3.86	2.4322	17.6400	58.0764	0.028116	1	Complies

Conducted Power for IEEE 802.11a : 20.09 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5240	3.83	2.4155	20.0900	102.0939	0.049085	1	Complies

Conducted Power for IEEE 802.11a : 18.04 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5745	4.33	2.7102	18.0400	63.6796	0.034352	1	Complies

Conducted Power for IEEE 802.11a : 16.48 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5785	4.67	2.9309	16.4800	44.4631	0.025939	1	Complies

Conducted Power for IEEE 802.11a : 15.33 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5825	4.46	2.7925	15.3300	34.1193	0.018965	1	Complies

<Ant. 1> Antenna Type : PCB Antenna / <Ant. 2> Antenna Type : Printed Antenna /

<Ant. 3> Antenna Type : PCB Antenna

<6Mbps, 1S3T, CDD>

Conducted Power for IEEE 802.11a : 16.37 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5180	5.15	3.2734	16.3700	43.3511	0.028246	1	Complies

Conducted Power for IEEE 802.11a : 16.51 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5200	4.91	3.0974	16.5100	44.7713	0.027603	1	Complies

Conducted Power for IEEE 802.11a : 21.22 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5240	4.50	2.8184	21.2200	132.4342	0.074293	1	Complies

Conducted Power for IEEE 802.11a : 19.64 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5745	5.27	3.3651	19.6448	92.1474	0.061721	1	Complies

Conducted Power for IEEE 802.11a : 17.46 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5785	5.51	3.5563	17.4600	55.7186	0.039441	1	Complies

Conducted Power for IEEE 802.11a : 16.65 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5825	5.32	3.4041	16.6500	46.2381	0.031329	1	Complies

<Ant. 1 > Antenna Type : PCB Antenna

<Nss1MCS0, Ant. 1 >

Conducted Power for IEEE 802.11ac 20MHz : 17.16 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5180	3.82	2.4099	17.1600	51.9996	0.024943	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 16.85 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5200	3.86	2.4322	16.8500	48.4172	0.023440	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 20.05 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5240	3.83	2.4155	20.0500	101.1579	0.048635	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 17.23 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5745	4.33	2.7102	17.2300	52.8445	0.028507	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 15.64 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5785	4.67	2.9309	15.6400	36.6438	0.021377	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 15.35 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5825	4.46	2.7925	15.3500	34.2768	0.019052	1	Complies

<Ant. 1> Antenna Type : PCB Antenna / <Ant. 2> Antenna Type : Printed Antenna /

<Ant. 3> Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, CDD>

Conducted Power for IEEE 802.11ac 20MHz : 17.65 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5180	5.15	3.2734	17.6500	58.2103	0.037927	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 17.42 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5200	4.91	3.0974	17.4200	55.2077	0.034037	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 23.24 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5240	4.50	2.8184	23.2400	210.8628	0.118291	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 20.58 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5745	5.27	3.3651	20.5800	114.2878	0.076551	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 18.73 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5785	5.51	3.5563	18.7300	74.6449	0.052838	1	Complies

Conducted Power for IEEE 802.11ac 20MHz : 18.77 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5825	5.32	3.4041	18.7700	75.3356	0.051045	1	Complies

<Ant. 1> Antenna Type : PCB Antenna / <Ant. 2> Antenna Type : Printed Antenna /

<Ant. 3> Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, TXBF>

Conducted Power for IEEE 802.11ac 20MHz : 18.80 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5180	6.51	4.4771	18.8000	75.8578	0.067601	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{IS}} \left(\sum_{k=1}^{N_{ANT}} S_{j,k} \right)^2}{N_{ANT}} \right] = 6.51 \text{ dBi}$

Conducted Power for IEEE 802.11ac 20MHz : 16.09 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5200	6.40	4.3652	16.0900	40.6443	0.035314	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{IS}} \left(\sum_{k=1}^{N_{ANT}} S_{j,k} \right)^2}{N_{ANT}} \right] = 6.40 \text{ dBi}$

Conducted Power for IEEE 802.11ac 20MHz : 21.64 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5240	6.26	4.2267	21.6400	145.8814	0.122730	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{IS}} \left(\sum_{k=1}^{N_{ANT}} S_{j,k} \right)^2}{N_{ANT}} \right] = 6.26 \text{ dBi}$

Conducted Power for IEEE 802.11 ac 20MHz : 19.64 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5745	6.25	4.2170	19.6448	92.1474	0.077345	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SI}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] = 6.25 \text{dBi}$

Conducted Power for IEEE 802.11 ac 20MHz : 17.96 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5785	6.45	4.4157	17.9600	62.5173	0.054948	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SI}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] = 6.45 \text{dBi}$

Conducted Power for IEEE 802.11 ac 20MHz : 17.54 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5825	6.43	4.3954	17.5400	56.7545	0.049654	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SI}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right] = 6.43 \text{dBi}$

<Ant. 1 > Antenna Type : PCB Antenna

<Nss1MCS0, Ant. 1 >

Conducted Power for IEEE 802.11ac 40MHz : 17.49 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5190	3.96	2.4889	17.4900	56.1048	0.027794	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 18.82 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5230	3.76	2.3768	18.8200	76.2079	0.036054	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 15.92 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5755	4.45	2.7861	15.9200	39.0841	0.021675	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 16.99 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5795	4.69	2.9444	16.9900	50.0035	0.029306	1	Complies

<Ant. 1 > Antenna Type : PCB Antenna / <Ant. 2 > Antenna Type : Printed Antenna /

<Ant. 3 > Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, CDD >

Conducted Power for IEEE 802.11ac 40MHz : 20.72 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5190	5.03	3.1842	20.7200	118.0321	0.074808	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 19.62 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5230	4.54	2.8445	19.6200	91.6220	0.051874	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 19.99 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5755	5.25	3.3497	19.9900	99.7700	0.066520	1	Complies

Conducted Power for IEEE 802.11ac 40MHz : 21.20 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5795	5.53	3.5727	21.2000	131.8257	0.093745	1	Complies

<Ant. 1 > Antenna Type : PCB Antenna / <Ant. 2 > Antenna Type : Printed Antenna /

<Ant. 3 > Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, TXBF>

Conducted Power for IEEE 802.11ac 40MHz : 19.43 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5190	6.47	4.4361	19.4300	87.7001	0.077437	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} S_{j,k} \right\}^2}{N_{ANT}} \right] = 6.47 \text{ dBi}$

Conducted Power for IEEE 802.11ac 40MHz : 17.99 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5230	6.25	4.2170	17.9900	62.9506	0.052838	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} S_{j,k} \right\}^2}{N_{ANT}} \right] = 6.25 \text{ dBi}$

Conducted Power for IEEE 802.11ac 40MHz : 19.27 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5755	6.35	4.3152	19.2700	84.5279	0.072602	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} S_{j,k} \right\}^2}{N_{ANT}} \right] = 6.35 \text{ dBi}$

Conducted Power for IEEE 802.11ac 40MHz : 18.71 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5795	6.44	4.4055	18.7100	74.3019	0.065155	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} S_{j,k} \right\}^2}{N_{ANT}} \right] = 6.44 \text{ dBi}$

<Ant. 1 > Antenna Type : PCB Antenna

<Nss1MCS0, Ant. 1 >

Conducted Power for IEEE 802.11ac 80MHz : 14.41 dBm

Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
0.2	5210	3.87	2.4378	14.4100	27.6058	0.013395	1	Complies

Conducted Power for IEEE 802.11ac 80MHz : 14.11 dBm

Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
0.2	5775	4.64	2.9107	14.1100	25.7632	0.014926	1	Complies

<Ant. 1 > Antenna Type : PCB Antenna / <Ant. 2 > Antenna Type : Printed Antenna /

<Ant. 3 > Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, CDD >

Conducted Power for IEEE 802.11ac 80MHz : 18.07 dBm

Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
0.2	5210	4.82	3.0339	18.0700	64.1210	0.038721	1	Complies

Conducted Power for IEEE 802.11ac 80MHz : 18.06 dBm

Distance (m)	Test Freq (MHz)	Antenna Gain (dBi)	Antenna Gain (numeric)	The maximum combined Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
				(dBm)	(mW)			
0.2	5775	5.48	3.5318	18.0571	63.9309	0.044943	1	Complies

<Ant. 1> Antenna Type : PCB Antenna / <Ant. 2> Antenna Type : Printed Antenna /

<Ant. 3> Antenna Type : PCB Antenna

<Nss1MCS0, 1S3T, TXBF>

Conducted Power for IEEE 802.11ac 80MHz : 18.48 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5210	6.40	4.3652	18.4835	70.5269	0.061278	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{dir}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right] = 6.40dBi$

Conducted Power for IEEE 802.11ac 80MHz : 17.65 dBm

Test Mode	Distance (m)	Test Freq (MHz)	Directional Gain (dBi)	Antenna Gain (numeric)	Average Output Power		Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
					(dBm)	(mW)			
5GHz	0.2	5775	6.45	4.4157	17.6522	58.2397	0.051188	1	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{dir}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right] = 6.45dBi$

CONCLUSION:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band function can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is $0.506523 / 1 + 0.122730 / 1 = 0.629253$, which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.