

RF EXPOSURE EVALUATION

Applicable Standard

According to subpart 15.247 (i) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

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

f = frequency in MHz

* = Plane-wave equivalent power density

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Result

Mode	Frequency (MHz)	Antenna Gain [#]		Tune up conducted power [#]		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G WIFI	2412-2462	3.17	2.07	28	630.96	20	0.2598	1
BLE	2402-2480	3.17	2.07	9	7.94	20	0.0033	1
5G WIFI	5150-5250	2.34	1.71	21	125.89	20	0.0428	1
	5250-5350	2.66	1.85	22	158.49	20	0.0583	1
	5470-5725	2.40	1.74	22	158.49	20	0.0549	1
	5725-5850	2.57	1.81	22	158.49	20	0.0571	1

Note 1: The tune up conducted power and antenna gain was declared by the applicant.

Note 2: BLE ,2.4G Wi-Fi and 5G Wi-Fi cannot transmit at same time.

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons