



Shenzhen BCTC Technology Co., Ltd.

FCC §15.247 (i), §2.1091 – RF Exposure

FCC ID: ZGM-MV2458

IC: 23051-MV2458

Applied procedures / limit

According to FCC §15.247(i) and §1.1307(b)(1), 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 level in excess of the Commission's guidelines.

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

Note: *f* is frequency in MHz

* = Power density limit is applicable at frequencies greater than 100 MHz

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



RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> ^{0.25}	0.1540/ <i>f</i> ^{0.25}	8.944/ <i>f</i> ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> ^{0.3417}	0.008335 <i>f</i> ^{0.3417}	0.02619 <i>f</i> ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> ^{1.2}
150000-300000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616000/ <i>f</i> ^{1.2}
Note: <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

Note: *f* = frequency in MHz

* = Plane-wave equivalent power density

MPE PREDICTION

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna, R=0.2m



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TEST RESULTS

	tune up power tolerance (dBm)		max. output power(mW)		Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)		Total Power Density (S) (mW/ cm ²)	Power Density (S) (W/m ²)	Limit of Power Density (S) (mW/ cm ²)	RSS-102 Limit of Power Density (S) (W/m ²)	Result
	ANT1	ANT2	ANT1	ANT2		ANT1	ANT2					
2.4g 802.11b	15±1	15±1	39.81	39.81	2.0 (3.0dBi)	0.01580	0.01580	/	0.15803	1	5.37	Pass
2.4g 802.11g	14±1	14±1	31.62	31.62	2.0 (3.0dBi)	0.00997	0.00997	/	0.09971	1	5.37	Pass

	tune up power tolerance (dBm)		max. output power(mW)		Directional Gain (numeric)	Power Density (S) (mW/ cm ²)		Total Power Density (S) (mW/ cm ²)	Power Density (S) (W/m ²)	Limit of Power Density (S) (mW/ cm ²)	RSS-102 Limit of Power Density (S) (W/m ²)	Result
	ANT1	ANT2	ANT1	ANT2		ANT1	ANT2					
2.4g 802.11n (HT20)	13±1	13±1	25.12	25.12	3.98 (6.0dBi)	0.01	0.01	0.02	0.2	1	5.37	Pass
2.4g 802.11n (HT40)	12±1	12±1	19.95	19.95	3.98 (6.0dBi)	0.0079	0.0079	0.0158	0.158	1	5.37	Pass

Note: the Directional Gain=3dBi+10log(2)=6dBi

	tune up power tolerance (dBm)	max. output power(mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Power Density (S) (W/m ²)	Limit of Power Density (S) (mW/ cm ²)	RSS-102 Limit of Power Density (S) (W/m ²)	Result
5g 802.11a	17±1	63.10	2.0 (3.0dBi)	0.02505	0.25046	1	9.05	Pass
5g 802.11n (HT20)	15±1	39.81	2.0 (3.0dBi)	0.01580	0.15803	1	9.05	Pass
5g 802.11n (HT40)	14±1	31.62	2.0 (3.0dBi)	0.01255	0.12553	1	9.05	Pass

the 2.4G &5G can't work same time