

MAXIMUM PERMISSIBLE EXPOSURE(MPE)

Applicable Standard: FCC §2.1091 §15.247(i) and 15.407(f)

According to FCC §15.247(i) and 15.407(f) subpart §1.1307(b)(1), systems operating under 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 Maximum Permissible Exposure(MPE)(§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
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;

MPE Calculation

Predication of MPE limit at a given distance

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

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2012-6-17	2013-6-17

***statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For 15.247 802.11 b/g/n 2.4GHz band, the antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

For 15.247 802.11 a/n 5.8GHz band, the RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, and video bandwidth was set at 3MHz. Set the span to fully encompass the DTS bandwidth. Detector = peak, Sweep time = auto couple, Trace mode = max hold.

For 15.407 802.11 a 5.15-5.25GHz band, the RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, and video bandwidth was set at 3MHz. Set the Integral bandwidth=26dB emission bandwidth, and the span to fully encompass the DTS bandwidth. Detector = RMS, Sweep time = auto couple, Trace mode = max hold. Sweep point=100.

12.4 Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

12.5 Test Result: Pass. The device meets FCC MPE limit at 40cm distance.

Antenna Gain in 2.4GHz band for the model Bgate-GT10-D24-N22-P is 15dBi

Antenna Gain in 2.4GHz band for the model Bgate-GT10 is 10dBi

Antenna Gain in 2.4GHz band for the model Bgate-GT10-I is 13.5dBi

Antenna Gain in 5.1GHz and 5.8GHz band is 17dBi

Mode	Frequency (MHz)	Port	power (dBm)	Combined power(dBm)	Max. Antenna Gain(dBi)	Evaluation Distance(cm)	Power Density (mW/ cm ²)	MPE limit (mW/ cm ²)
802.11 b	2412-2462	1	18.0	21.0	15	40	0.20	1.0
		2	18.0					
802.11 g		1	18.0	21.0	15	40	0.20	1.0
		2	18.0					
802.11 .n20	2422-2452	1	18.0	21.0	15	40	0.20	1.0
		2	18.0					
802.11 .n40		1	18.0	21.0	15	40	0.20	1.0
		2	18.0					

Mode	Frequency (MHz)	Port	power (dBm)	Combined power(dBm)	Antenna Gain(dBi)	Evaluation Distance(cm)	Power Density (mW/ cm ²)	MPE limit (mW/ cm ²)
802.11 a	5180-5240	1	3.5	6.5	17	40	0.01	1.0
		2	3.5					

Mode	Frequency (MHz)	Port	power (dBm)	Combined power(dBm)	Antenna Gain(dBi)	Evaluation Distance(cm)	Power Density (mW/ cm ²)	MPE limit (mW/ cm ²)
802.11 a	5745-5825	1	16.5	19.5	17	40	0.22	1.0
		2	16.5					
802.11 .n20		1	16.5	19.5	17	40	0.22	1.0
		2	16.5					
802.11 .n40	5755-5795	1	16.5	19.5	17	40	0.22	1.0
		2	16.5					