



RF Exposure Compliance Requirement

1. Standard requirement

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 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 a distance of 0.2m normally can be 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 Times $ 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
1500-100000	--	--	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 Times $ 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
1500-100000	--	--	1.0	30

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



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Application No.: GZEM1610007297CR

Page: 2 of 5

FCC ID: 2AJZVTW1

2. MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } P_d \text{ (W/m}^2\text{)} = E^2 / 377$$

E=Electric Field (V/m)

P=Peak 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

$$P_d = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

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

3. Calculated Result and Limit

For BT

Normal mode

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	0.631	3.1	2.042	0.00026	1	Complies
2441	0.631	2.82	1.914	0.00024	1	Complies
2480	0.631	3.1	2.042	0.00026	1	Complies

EDR mode

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2402	0.631	1.94	1.563	0.00020	1	Complies
2441	0.631	1.41	1.384	0.00017	1	Complies
2480	0.631	1.57	1.435	0.00018	1	Complies



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1610007297CR

Page: 3 of 5

FCC ID: 2AJZVTW1

For Wi-Fi

(1) 802.11b 11Mbps data rate:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2412	0.631	17.18	52.240	0.00656	1	Complies
2442	0.631	15.76	37.670	0.00473	1	Complies
2462	0.631	15.44	34.995	0.00439	1	Complies

(2) 802.11g 54Mbps data rate:

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2412	0.631	19.16	82.414	0.01034	1	Complies
2442	0.631	18.24	66.681	0.00837	1	Complies
2462	0.631	17.24	52.966	0.00665	1	Complies

(3) 802.11n(HT20) 72.2Mbps data rate

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2412	0.631	19.48	88.716	0.01114	1	Complies
2442	0.631	18.24	66.681	0.00837	1	Complies
2462	0.631	17.99	62.951	0.00790	1	Complies

(4) 802.11n(HT40) 150Mbps data rate

Frequency (MHz)	Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2422	0.631	16.79	47.753	0.00599	1	Complies
2442	0.631	16.24	42.073	0.00528	1	Complies
2452	0.631	15.87	38.637	0.00485	1	Complies



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1610007297CR

Page: 4 of 5

FCC ID: 2AJZVTW1

For Wi-Fi+ BT Normal

(1)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	20.28	106.660	0.01339	1	Complies
0.631	18.58	72.111	0.00905	1	Complies
0.631	18.54	71.450	0.00897	1	Complies

(2)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	22.26	168.267	0.02112	1	Complies
0.631	21.06	127.644	0.01602	1	Complies
0.631	20.34	108.143	0.01357	1	Complies

(3)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	22.58	181.134	0.02274	1	Complies
0.631	21.06	127.644	0.01602	1	Complies
0.631	21.09	128.529	0.01613	1	Complies

(4) 802.11n(HT40) 150Mbps data rate

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	18.73	74.645	0.00937	1	Complies
0.631	17.65	58.210	0.00731	1	Complies
0.631	17.44	55.463	0.00696	1	Complies



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

Application No.: GZEM1610007297CR

Page: 5 of 5

FCC ID: 2AJZVTW1

For Wi-Fi+ BT EDR

(1)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	19.12	81.658	0.01025	1	Complies
0.631	17.17	52.119	0.00654	1	Complies
0.631	17.01	50.234	0.00631	1	Complies

(2)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	21.1	128.825	0.01617	1	Complies
0.631	19.65	92.257	0.01158	1	Complies
0.631	18.81	76.033	0.00954	1	Complies

(3)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	21.42	138.676	0.01741	1	Complies
0.631	19.65	92.257	0.01158	1	Complies
0.631	19.56	90.365	0.01134	1	Complies

(4)

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
0.631	17.22	52.723	0.00662	1	Complies
0.631	16.25	42.170	0.00529	1	Complies
0.631	15.90	38.905	0.00488	1	Complies