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

2. MPE Calculation Method

E (V/m)=(30*P*G)$^{0.5}$/d Power Density: Pd(W/m^2)=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

Pd= (30*P*G)/(377*d^2)

From the peak 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.

3. Calculated Result and Limit

(1)

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	1.000	7.22	5.272	0.00105	1	Complies
2441	1.000	7.65	5.821	0.00116	1	Complies
2480	1.000	7.45	5.559	0.00111	1	Complies

(2)

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	1.000	-5.88	0.258	0.00005	1	Complies
2442	1.000	-6.75	0.211	0.00004	1	Complies
2480	1.000	-8.18	0.152	0.00003	1	Complies

(3)802.11b

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	1.000	23.03	200.909	0.03997	1	Complies
2442	1.000	24	251.189	0.04997	1	Complies
2462	1.000	23.2	208.930	0.04156	1	Complies

(4)802.11g

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	1.000	22.86	193.197	0.03843	1	Complies
2442	1.000	23.5	223.872	0.04454	1	Complies
2462	1.000	23.41	219.280	0.04362	1	Complies

(5)802.11 ht20

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	1.000	23.03	200.909	0.03997	1	Complies
2442	1.000	22.76	188.799	0.03756	1	Complies
2462	1.000	23.68	233.346	0.04642	1	Complies

(6)802.11 ht40

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	1.000	22.2	165.959	0.03302	1	Complies
2442	1.000	23.14	206.063	0.04099	1	Complies
2452	1.000	23.38	217.771	0.04332	1	Complies

Both WIFI and Bluetooth MAX transmit together, the maximum output power will be 251.188+5.821=257.009mW. the **Power Density** is below limit.