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) 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	2.00	14.84	30.48	0.0121	1	Complies
2437	2.00	15.12	32.51	0.0129	1	Complies
2462	2.00	15.99	39.72	0.0158	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	2.00	18.81	76.03	0.0302	1	Complies
2437	2.00	18.80	75.86	0.0301	1	Complies
2462	2.00	18.82	76.21	0.0302	1	Complies

(3) 802.11n HT20 65Mbps 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	2.00	16.80	47.86	0.0190	1	Complies
2437	2.00	16.84	48.31	0.0192	1	Complies
2462	2.00	16.83	48.19	0.0191	1	Complies

(4) 802.11a(20) 24Mbps data rate (Band I: 5150MHz-5250MHz):

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
5180	2.00	11.54	14.26	0.00566	1	Complies
5220	2.00	11.83	15.24	0.00605	1	Complies
5240	2.00	12.02	15.92	0.00632	1	Complies

(5) 802.11n(HT20) 65Mbps data rate (Band I: 5150MHz-5250MHz):

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
5180	2.00	11.64	14.59	0.00579	1	Complies
5220	2.00	11.85	15.31	0.00608	1	Complies
5240	2.00	12.01	15.89	0.00631	1	Complies

(6) 802.11a(20) 24Mbps data rate (Band IV: 5725MHz-5850MHz):

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
5745	2.00	12.18	16.52	0.00656	1	Complies
5785	2.00	11.98	15.78	0.00626	1	Complies
5825	2.00	12.09	16.18	0.00642	1	Complies

(7) 802.11n(HT20) 65Mbps data rate (Band IV: 5725MHz-5850MHz):

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
5745	2.00	12.22	16.67	0.00662	1	Complies
5785	2.00	12.16	16.44	0.00653	1	Complies
5825	2.00	12.13	16.33	0.00648	1	Complies