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

FCC ID: 2ANRXUPAIR2

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

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

TEST RESULTS

	tune up power tolerance (dBm)		max. output power(mW)		Antenna Gain (numeric)	Total Power Density (S) (mW/ cm2)		Limit of Power Density (S) (mW/ cm2)	Result
	ANT1	ANT2	ANT1	ANT2		ANT1	ANT2		
802.11a	17±1	17±1	63.10	63.10	2.0 (3.0dBi)	0.02505	0.02505	1	Pass
802.11n 20	15±1	15±1	39.81	39.81	3.98 (6.0dBi)	0.06306		1	Pass
802.11n 40	14±1	14±1	31.62	31.62	3.98 (6.0dBi)	0.0501		1	Pass