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

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

TEST RESULTS

1Mbps			
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)
CH00	2402	2.675	1.85
CH39	2441	3.691	2.34
CH78	2480	4.966	3.14
2Mbps			
CH00	2402	2.454	1.76
CH39	2441	3.627	2.31
CH78	2480	4.90	3.09
3Mbps			
CH00	2402	2.725	1.87
CH39	2441	3.650	2.32
CH78	2480	4.849	3.05

Mode	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm^2)	Limit of Power Density (S) (mW/ cm^2)	Result
1Mbps						
2402	2.675	1.85	1.26(1dBi)	0.0005	1	Pass
2441	3.691	2.34	1.26(1dBi)	0.0006	1	Pass
2480	4.966	3.14	1.26(1dBi)	0.0008	1	Pass
2Mbps						
2402	2.454	1.76	1.26(1dBi)	0.0004	1	Pass
2441	3.627	2.31	1.26(1dBi)	0.0006	1	Pass
2480	4.90	3.09	1.26(1dBi)	0.0008	1	Pass
3Mbps						
2402	2.725	1.87	1.26(1dBi)	0.0005	1	Pass
2441	3.650	2.32	1.26(1dBi)	0.0006	1	Pass
2480	4.849	3.05	1.26(1dBi)	0.0008	1	Pass