



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

FCC ID: 2AET3-AR-2819**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

TX:

TX 802.11b Mode				
Test Channel	Frequency	Maximum Conducted Output Power(PK)	Average Power(dBm)	Average Output Power
	(MHz)	(dBm)	(dBm)	(mW)
CH01	2412	13.54	9.51	8.93
CH06	2437	13.22	9.45	8.81
CH11	2462	13.46	9.53	8.97

TX 802.11g Mode				
CH01	2412	12.57	8.29	6.75
CH06	2437	12.36	8.14	6.52
CH11	2462	12.44	8.27	6.71

TX 802.11n-HT20 Mode				
CH01	2412	11.42	7.55	5.69
CH06	2437	11.31	7.33	5.41
CH11	2462	11.41	7.41	5.51

TX 802.11n-HT40 Mode				
CH03	2422	10.82	7.24	5.30
CH06	2437	10.64	7.31	5.38
CH09	2452	10.95	7.40	5.50

MPE:

Channel (MHz)	Average 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
Operating Mode:802.11 b						
2412	9.51	8.93	1.26 (1.0 dBi)	0.0022	1	Pass
2437	9.45	8.81	1.26 (1.0 dBi)	0.0022	1	Pass
2462	9.53	8.97	1.26 (1.0 dBi)	0.0022	1	Pass
Operating Mode:802.11 g						
2412	8.29	6.75	1.26 (1.0 dBi)	0.0017	1	Pass
2437	8.14	6.52	1.26 (1.0 dBi)	0.0016	1	Pass
2462	8.27	6.71	1.26 (1.0 dBi)	0.0017	1	Pass
Operating Mode:802.11 n(20MHz)						
2412	7.55	5.69	1.26 (1.0 dBi)	0.0014	1	Pass
2437	7.33	5.41	1.26 (1.0 dBi)	0.0014	1	Pass
2462	7.41	5.51	1.26 (1.0 dBi)	0.0014	1	Pass
Operating Mode:802.11 n(40MHz)						
2422	7.24	5.30	1.26 (1.0 dBi)	0.0013	1	Pass
2437	7.31	5.38	1.26 (1.0 dBi)	0.0013	1	Pass
2452	7.40	5.50	1.26 (1.0 dBi)	0.0014	1	Pass

NOTE: 1. (For mobile or fixed location transmitters, the maximum power density is 1.0mW/cm² even if the calculation indicates that the power density would be larger)
2. The test distance is 20cm