



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

FCC ID: 2ABC5AIO-1502

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



2.4G WIFI

IEEE 802.11b

max possible output power (PK,conducted) : 15.36 ± 1 dbm

IEEE 802.11g

max possible output power (PK,conducted) : 13.85 ± 1 dbm

IEEE 802.11N(HT20)

max possible output power (PK,conducted) : 12.73 ± 1 dbm

IEEE 802.11N(HT40)

max possible output power (PK,conducted) : 11.68 ± 1 dbm

The max possible output power (PK,conducted) of All (IEEE 802.11b , IEEE 802.11g, IEEE 802.11n(20), IEEE 802.11n(40)) is IEEE 802.11b.

802.11b Mode			
Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	15.36	30
CH06	2437	15.27	30
CH11	2462	15.31	30
802.11g Mode			
CH01	2412	13.85	30
CH06	2437	13.54	30
CH11	2462	13.61	30
802.11n-HT20 Mode			
CH01	2412	12.64	30
CH06	2437	12.73	30
CH11	2462	12.57	30
802.11n-HT40 Mode			
CH03	2422	11.17	30
CH06	2437	11.68	30
CH09	2452	11.35	30



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=20cm

Test Result of RF Exposure Evaluation

	Target power W/ tolerance (dBm)	Max tune up power tolerance (dBm)	Output power to antenna (mW)	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
802.11b	15.36±1.0	16.36	43.25	1.62 (2.1dBi)	0.013946	1.0	Pass
802.11g	13.85±1.0	14.85	30.55	1.62 (2.1dBi)	0.009850	1.0	Pass
802.11n20M Hz	12.73±1.0	13.73	23.60	1.62 (2.1dBi)	0.007610	1.0	Pass
802.11n40M Hz	11.68±1.0	12.68	18.54	1.62 (2.1dBi)	0.005978	1.0	Pass