



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

FCC ID: 2AKL3G1

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



	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
802.11b	2412	12.85	30
	2437	12.68	30
	2462	12.57	30
802.11g	2412	10.78	30
	2437	10.55	30
	2462	10.63	30
802.11n20	2412	9.69	30
	2437	9.26	30
	2462	9.79	30
802.11n40	2422	8.76	30
	2437	8.73	30
	2452	8.75	30
BT	2402	0.86	30
	2440	0.59	30
	2480	0.65	30



WIFI

IEEE 802.11b

max possible output power (PK,conducted) : $12\pm 1\text{dbm}$

IEEE 802.11g

max possible output power (PK,conducted) : $10\pm 1\text{dbm}$

IEEE 802.11n(20)

max possible output power (PK,conducted) : $9\pm 1\text{dbm}$

IEEE 802.11n(40)

max possible output power (PKconducted) : $8\pm 1\text{dbm}$

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

BT

GFSK

max possible output power (PK,conducted) : $0\pm 1\text{dbm}$



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)	Total Output power to antenna (mW)	Antenna Gain(dBi)	Total Power Density at R=20cm (mW/cm ²)	Limit (mW/cm ²)	Result
WIFI	802.11b	12±1.0	13	19.95	1.0 (1.258)	0.004995	1.0	Pass
BT	GFSK	0±1.0	1	1.26	1.0 (1.258)	0.000316	1.0	Pass