

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

FCC ID: APIHKOMNI20

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

WIFI: Ant A

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
802.11b	12.32	17.06	3.12(2.05dBi)	0.0070	1	Pass
802.11g	11.42	13.87	3.12(2.05dBi)	0.0057	1	Pass
802.11n-HT20	10.51	11.25	3.12(2.05dBi)	0.0046	1	Pass

WIFI: Ant B

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
802.11b	12.53	17.91	3.34(2.16dBi)	0.0077	1	Pass
802.11g	11.42	13.87	3.34(2.16dBi)	0.0060	1	Pass
802.11n-HT20	10.62	11.53	3.34(2.16dBi)	0.0050	1	Pass

BT:

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	5.324	3.41	2.19(1.66dBi)	0.0011	1	Pass
2Mbps	5.180	3.30	2.19(1.66dBi)	0.0011	1	Pass
3Mbps	4.714	2.96	2.19(1.66dBi)	0.0010	1	Pass

Note: Note: The assess distance is 20cm.