



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

FCC ID: 2AUH9-Q83

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, R=0.2m

TEST RESULTS

	Tune up Produce power	Maximum peak output power (dBm)	Output power to antenna (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit (mW/ cm ²)	Result
2412 (2.4G Hz WIFI)	10±1	11	12.59	1.503 (1.77dBi)	0.00376	1	Pass
2480 (BT)	4±1	5	3.16	1.503 (1.77dBi)	0.00094	1	Pass
2402 (BLE)	1±1	2	1.58	1.503 (1.77dBi)	0.00047	1	Pass
5180 (U-NII-1)	8±1	9	7.94	1.140 (0.57dBi)	0.00180	1	Pass
5280 (U-NII-2A)	13±1	14	25.12	1.127 (0.52dBi)	0.00563	1	Pass
5500 (U-NII-2C)	13±1	14	25.12	1.291 (1.11dBi)	0.00645	1	Pass
5745 (U-NII-3)	7±1	8	6.31	0.836 (-0.78dBi)	0.00105	1	Pass

	Max Output Power (dBuV/m)	Max Output power (dBm)	Toleranc e	Max Tune-UP power (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm ²)	Limit (mW/ cm ²)	Result
88.1 (FM)	45.56	-49.69	±1	0.00001	3.069 (4.87dBi)	0.0061e-6	1	Pass



For the Max simultaneous transmission MPE:

	Power Density (S) (mW/ cm2)	Total Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
2.4GHz WIFI	0.00376	0.00470	1	Pass
BT	0.00094			
FM	0.0061e-6			

	Power Density (S) (mW/ cm2)	Total Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
5GHz WIFI	0.00645	0.00739	1	Pass
BT	0.00094			
FM	0.0061e-6			

	Power Density (S) (mW/ cm2)	Total Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
2.4GHz WIFI	0.00376	0.00423	1	Pass
BLE	0.00047			
FM	0.0061e-6			



	Power Density (S) (mW/ cm ²)	Total Power Density (S) (mW/ cm ²)	Limit (mW/ cm ²)	Result
5GHz WIFI	0.00645	0.00692	1	Pass
BLE	0.00047			
FM	0.0061e-6			