

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

FCC ID: 2AUVX-NT68

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=20cm

Test Result of RF Exposure Evaluation

	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
2.4GWIFI	14±1	15	31.6228	1.8664 (2.71dBi)	0.0117	1	Pass
BLE	1±1	2	1.5849	1.9099 (2.81dBi)	0.0006	1	Pass
LTE BAND 2	19±1	20	100	2.1627 (3.35dBi)	0.043	1	Pass
LTE BAND 4	19±1	20	100	1.4289 (1.55dBi)	0.028	1	Pass
LTE BAND 12	20±1	21	125.892 5	0.7656 (-1.16dBi)	0.0192	0.5	Pass
LTE BAND 13	20±1	21	125.892 5	0.9036 (-0.44dBi)	0.0226	0.5	Pass

supported simultaneous transmission:

Bluetooth+WIFI+LTE: $\sum \text{MPE Ratio} = 0.0006/1 + 0.0117/1 + 0.0226/0.5 = 0.0575 \leq 1$,

The result is pass.