

FCC 22H 27L, §15.247 (i), §2.1091 – RF Exposure

FCC ID: 2AZT2-LWLIQ30001

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	Maximu m peak output power (dBm)	Output power to antenn a (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm2)	Limit (mW/ cm2)	Result
LTE BADN 5	24±1	25	316.23	1.259 (1.00dBi)	0.079246	0.566	Pass
LTE BADN 41	19±1	20	100	1.259 (1.00dBi)	0.025260	1	Pass
WIFI	8±1	9	7.94	1.259 (1.00dBi)	0.001990	1	Pass
BLE	0±1	1	1.26	1.259 (1.00dBi)	0.00032	1	Pass
Zigbee	1±1	2	1.58	1.413 (1.50dBi)	0.00040	1	Pass

No.	Transmitter Combinations	Scenario Supported or not
1	WWAN+2.4G WLAN	Yes
2	WWAN+BLE	Yes
3	WWAN+Zigbee	Yes
4	WWAN+WLAN+BLE+Zigbee	Yes

No.	Model	MPE Ratio	Results
1	LTE+2.4G WLAN	0.00199+0.14001	0.142<1 (Pass)
2	LTE+BLE	0.00032+0.14001	0.140<1 (Pass)
3	LTE+Zigbee	0.00040+0.14001	0.140<1 (Pass)
4	LTE+WLAN+BLE+Zigbee	0.00199+0.00032+ 0.00040+0.14001	0.143<1 (Pass)