



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

FCC ID: 2AUA9-RQZY015

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

| Mode | Tune up Produce power | Maximum peak output power (dBm) | Output power to antenna (mW) | Antenna Gain (numeric) | Power Density (S) (mW/ cm2) | Limit (mW/ cm2) | Result |
|-----------|-----------------------------|---------------------------------------|------------------------------------|------------------------------|-----------------------------------|--------------------|--------|
| 2.4G WIFI | 8±1 | 9 | 7.943 | 1.18 (0.71dBi) | 0.001865 | 1 | Pass |
| 5.1G WIFI | 9±1 | 10 | 10 | 1.55 (1.91dBi) | 0.003084 | 1 | Pass |
| 5.8G WIFI | 9±1 | 10 | 10 | 1.57 (1.95dBi) | 0.003123 | 1 | Pass |
| BLE | -5±1 | -4 | 0.398 | 0.98 (-0.1 dBi) | 0.000078 | 1 | Pass |
| BT | -7±1 | -6 | 0.251 | 0.98 (-0.1 dBi) | 0.000049 | 1 | Pass |

The Bluetooth and WIFI can transmit at the same time. So the worst simultaneous transmitting consideration:

The ratio=0.001865/1+0.003084/1+0.003123/1+0.000078/1+0.000049/1=0.008199≤ 1.0

Conclusion:

For the all Power Density≤ 1.0, compliance with FCC's RF Exposure