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

**FCC ID:** 2AJ9T-CR70RW

**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

| | Modes& Channel Freq. (MHz) | 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 |
|---|---|---|---|---|---|---|---|---|
| 13.56MHz | ASK | 4±1 | 5 | 3.1623 | 1.2589 (1dBi) | 0.0008 | 1 | Pass |

13.56MHz Note:dbm=dbuv/m-95.2=101.07-95.2=5.87dBm(ERP), so the conduct peak power=5.91- 1=5.87dBm

125kHz+13.56MHz supported simultaneous transmission:

125kHz+13.56MHz MIMO : ∑MPE Ratio =0.0067+0.0008=0.0075≤1, So passed.