

## §2.1091 – RF Exposure

**FCC ID: 2A4WQ-7081**

### **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**

<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (E) (V/m)</b>	<b>Magnetic Field Strength (H) (A/m)</b>	<b>Power Density (S) (mW/ cm<sup>2</sup>)</b>	<b>Averaging Time  E <sup>2</sup>, H <sup>2</sup> or S (minutes)</b>
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**

<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (E) (V/m)</b>	<b>Magnetic Field Strength (H) (A/m)</b>	<b>Power Density (S) (mW/ cm<sup>2</sup>)</b>	<b>Averaging Time  E <sup>2</sup>, H <sup>2</sup> or S (minutes)</b>
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 antenn a (mW)	Antenna Gain (numeric)	Power Density (S) (mW/ cm <sup>2</sup> )	Lim it (m W / cm <sup>2</sup> )	Result
EDR	0±1	1	1.259	1.2589 (1dBi)	0.000315	1	Pass
BLE	1±1	2	1.585	1.2589 (1dBi)	0.000397	1	Pass
5G WIFI	8±1	9	7.943	1.2589 (1dBi)	0.00199	1	Pass

$S=0.000397/1+0.00199/1=0.002387 < 1$ , Pass