

## **FCC §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

### **Applicable Standard**

According to 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Maximum Permissible Exposure (MPE)

<b>Limits for Occupational/Controlled Exposure</b>				
<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 ,  H  or S (minutes)</b>
0.3- 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6

f = frequency in MHz;

\* = Plane-wave equivalent power density;

### **MPE Calculation**

**Prediction of power density at the distance of the applicable MPE limit**

$$S = PG/4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

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 (appropriate units, e.g., cm);

### **MPE Results**

<b>Frequency (MHz)</b>	<b>Antenna Gain</b>		<b>Maximum Peak output power including Tune-up Tolerance (mW)</b>	<b>Duty cycle</b>	<b>Evaluation Distance (cm)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Power Density Limit (mW/cm<sup>2</sup>)</b>
	<b>(dBi)</b>	<b>(numeric)</b>					
136-174	7.1	5.13	60000	50%	120	0.85	1.0

*Note: the Maximum Peak output power including Tune-up Tolerance was 60W declared by manufacturer.*

**Result:** The device meet FCC MPE of the Occupational/Controlled use at 120 cm distance.