

## **FCC §1.1307(b) & 2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

### **Applicable Standard**

According to subpart 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 General Population/Uncontrolled Exposure**

<b>Limits for General Population/Uncontrolled Exposure</b>				
<b>Frequency Range (MHz)</b>	<b>Electric Field Strength (V/m)</b>	<b>Magnetic Field Strength (A/m)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>Averaging Time (Minutes)</b>
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

### **Result**

#### **Calculated Formulary:**

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

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, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

### **Result**

#### **For worst case:**

<b>Frequency (MHz)</b>	<b>Antenna Gain<sup>#</sup></b>	<b>Tune up conducted power<sup>#</sup></b>	<b>Evaluation Distance (cm)</b>	<b>Power Density (mW/cm<sup>2</sup>)</b>	<b>MPE Limit (mW/cm<sup>2</sup>)</b>
	<b>(dBi)</b>	<b>(dBm)</b>			
1921.536-1928.448	0	20	20	0.02	1.0

Note: The tune-up power and antenna gain was declared by the applicant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

### **Result: Compliant.**