

**FCC§1.1307 (b) (1) & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

**Applicable Standard**

According to subpart 1.1307 (b)(1), 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 General Population/Uncontrolled Exposure

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

| Frequency (MHz)   | Antenna Gain |           | Max average output power | The minimum Distance (cm) | Power density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) | Note                     |
|-------------------|--------------|-----------|--------------------------|---------------------------|-------------------------------------|---------------------------------|--------------------------|
|                   | (dBi)        | (numeric) |                          |                           |                                     |                                 |                          |
| 156.025 - 157.425 | 3            | 2         | 12500                    | 130                       | 0.118                               | 0.2                             | Uncontrolled Environment |

Note: The Maximum power is 25W (25000mW) which declared by manufacture. The duty cycle of 50% for this device, so the average power is 12500 mW

**Radiation Exposure Statement:**

To comply with RF exposure requirements, the minimum permissible distance is 130 cm required between the antenna and the body of the user or nearby persons.

**Result: Compliance**