

## FCC §15.319 (i) & §2.1091 - RF EXPOSURE INFORMATION

### Applicable Standards

According to FCC §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.

According to FCC §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz)                                      | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm <sup>2</sup> ) | Averaging Time (minute) |
|------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------|
| <b>Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                         |
| 0.3-1.34                                                   | 614                           | 1.63                          | *(100)                              | 30                      |
| 1.34-30                                                    | 842/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

### MPE Predication

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

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

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 = 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)

| Frequency (MHz) | Antenna Gain |           | Conducted Power |       | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) |
|-----------------|--------------|-----------|-----------------|-------|--------------------------|-------------------------------------|---------------------------------|
|                 | (dBi)        | (numeric) | (dBm)           | (mW)  |                          |                                     |                                 |
| 1921.536        | 2.0          | 1.6       | 19.25           | 84.14 | 20                       | 0.027                               | 1.0                             |

**Result:** The device meets FCC MPE limit at 20 cm distance.