

## FCC §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### Applicable Standard

According to 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)

| Limits for Occupational/Controlled 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 ,  H  or S (minutes) |
| 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

#### Predication of MPE limit at a given distance

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

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);

**Calculated Data:**

| Frequency | Conducted Output Power | Duty Cycle | Typical Antenna Gain |         | Distance | Power Density | Limit |
|-----------|------------------------|------------|----------------------|---------|----------|---------------|-------|
|           |                        |            | dBi                  | numeric |          |               |       |
| 155       | 28050                  | 50%        | 0                    | 1.0     | 75       | 0.20          | 1.0   |

Note1: The manufacturer does not specify an antenna to be used with this device, but a typical installation has a gain up to 0dBi.

Note2: The target power is 25W (43.98 dBm)  $\pm 0.5$ dB = 28050mW (44.48dBm)

**Radio Exposure Statement:**

To comply with RF exposure requirements, a minimum separation distance of 75 cm is required between antenna and all public persons.

Result: Compliant.