

## MPE Prediction

FCC Rule: 15.247(b)(5)

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 levels in excess of the Commission's guidelines. See §1.1307(b)(1) of this Chapter.

### 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> ) | Average time (minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| <b>(A)Limits For Occupational / Control Exposures</b>           |                               |                               |                                     |                        |
| 30-300  | 61.4                          | 0.613                         | 1.0                                 | 6                      |
| 300-1500  | ...                           | ...                           | F/300                               | 6                      |
| 1500-100,000  | ...                           | ...                           | 5                                   | 6                      |
| <b>(B)Limits For General Population / Uncontrolled Exposure</b> |                               |                               |                                     |                        |
| 30-300  | 27.5                          | 0.073                         | 0.2                                 | 30                     |
| 300-1500  | ...                           | ...                           | F/1500                              | 30                     |
| 1500-100,000  | ...                           | ...                           | 1.0                                 | 30                     |

F = Frequency in MHz

### Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

where:

S = power density

P = power input to the antenna

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

|  |                                     |
|--|-------------------------------------|
| Maximum peak output power at antenna input terminal:         | 15.08 (dBm)                         |
| Maximum peak output power at antenna input terminal:         | 32.2106 (mW)                        |
| Antenna gain(maximal):                                       | 2 (dBi)                             |
| Prediction distance:   | 20 (cm)                             |
| Prediction frequency:  | 2437 (MHz)                          |
| MPE limit for uncontrolled exposure at prediction frequency: | 1.0 (mW/cm <sup>2</sup> )           |
| Power density at prediction frequency:                       | 0 . 0 1 0 2 5 (mW/cm <sup>2</sup> ) |

The manual instruct the user to install and operate the device in a minimum distance of 20 cm between antenna and the users body.