

### Maximum Permissible Exposure Calculations.

The following calculations are based on guidelines published in OET Bulletin 65, Edition 97-01, August 1997: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.

| Near to Far Field |                 |                |                 |
|-------------------|-----------------|----------------|-----------------|
|                   | Frequency (GHz) | Wavelength (m) | Transition (cm) |
| Lower             | 2.4000          | 0.125          | ~2.0            |
| Upper             | 2.4835          | 0.121          | ~1.9            |

For a simple case, discounting reflections, equation 3, page 19 gives:

$$\text{Power Density, } S = PG / 4\pi R^2$$

Worst case power input to antenna : 2.55 mW.

Antenna gain : 0 dBi.

Numeric antenna gain : 1.

General population/ uncontrolled limit: 1mW/cm<sup>2</sup>.

Distance from antenna, R, where power density limit is reached is:

$$R = \sqrt{(PG / 4\pi S)}$$

$$R = 0.45 \text{ cm}$$

### Notes.

1. The maximum transmitter output power is that measured for FCC Part 15.247(b3).
2. The MPE calculation is based on the highest measured antenna output power.
3. The general population/ uncontrolled limit is taken from OET 65, Appendix A Table 1B page 67.

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For a truly worst case prediction of power density, including reflections from nearby surfaces, OET 65 recommends using equation 6, page 20.

$$\text{Power Density } S = PG/\pi R^2$$

Using the same figures as above the distance from antenna, R, where power density limit is reached is:

$$R = \sqrt{PG/\pi S}$$

$$R = 0.90 \text{ cm.}$$

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