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Maximum Permissable 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.

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

For a simple case, discounting reflections, equation 4, page 19 gives:

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

Worst case power input to antenna (P):   67mW.

Antenna gain: 0 dBi.

Numeric antenna gain (G):   1.

General population/ uncontrolled limit (S):   1mW/cm².

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

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

$$\underline{R = 2.31 \text{ cm}}$$

Notes.

1. The general population/ uncontrolled limit is taken from OET 65, Appendix A Table 1B page 67.

For a 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= 4.62 cm.

Neil Evans

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