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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.

	Far		

	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 4, page 19 gives:

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

Worst case power input to antenna: 12 mW. Antenna gain : 0 dBi. Numeric antenna gain : 1.

General population/ uncontrolled limit: 1mW/cm².

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

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

R= 0.98 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.

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

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

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

R= 1.95 cm.

Mark Bailey 21 May 2002 Red-M Ltd.