

EXHIBIT 13. MPE CALCULATIONS

The following MPE calculations are based on a 1.8 centimeter inverted-F printed circuit board trace antenna, with a measured ERP of 112 dBμV/m @ 3 meters, and conducted RF power of +22.72 dBm as presented to the antenna. The calculated gain of this antenna, based on the ERP measurements is -3.3dBi.

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:	22.72 (dBm)
Maximum peak output power at antenna input terminal:	187.07 (mW)
Antenna gain(typical):	-3.3 (dBi)
Maximum antenna gain:	0.4677 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	2400 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm^2)
Power density at prediction frequency:	0.0174 (mW/cm^2)
Maximum allowable antenna gain:	14.293 (dBi)
Margin of Compliance at 20 cm =	17.593 dB

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