

## EXHIBIT 15. MPE CALCULATIONS

### A. Horizontal EUT antenna.

The following MPE calculations are based on an inverted-L printed circuit board trace antenna, with a measured ERP of 113.2 dBμV/m, at 3 meters, and conducted RF power of +10.4 dBm as presented to the antenna. The calculated gain (measured over conducting ground plane) of this antenna, based on the ERP measurements is 7.6 dBi.

#### Prediction of MPE limit at a given distance

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

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

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:	10.40 (dBm)
Maximum peak output power at antenna input terminal:	10.965 (mW)
Antenna gain(typical):	7.6 (dBi)
Maximum antenna gain:	5.754 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	900 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	0.6 (mW/cm <sup>2</sup> )
Power density at prediction frequency:	0.012552 (mW/cm <sup>2</sup> )
Maximum allowable antenna gain:	24.4 (dBi)
Margin of Compliance at 20 cm =	16.8 dB

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EUT: RFI	IC #: 573R-THM4000R01	Template: 15.247 FHSS TX (V2.1 9-6-06)
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## B. Vertical EUT antenna.

The following MPE calculations are based on an inverted-L printed circuit board trace antenna, with a measured ERP of 110.4 dBμV/m, at 3 meters, and conducted RF power of +10.2 dBm as presented to the antenna. The calculated gain of this antenna, based on the ERP measurements is 5.0 dBi.

### Prediction of MPE limit at a given distance

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

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

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:	10.20 (dBm)
Maximum peak output power at antenna input terminal:	10.471 (mW)
Antenna gain(typical):	5 (dBi)
Maximum antenna gain:	3.162 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	900 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	0.6 (mW/cm^2)
Power density at prediction frequency:	0.006588 (mW/cm^2)
Maximum allowable antenna gain:	24.6 (dBi)
Margin of Compliance at 20 cm =	19.6 dB

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