

EXHIBIT 15. MPE CALCULATIONS

A. Horizontal EUT antenna.

The following MPE calculations are based on a printed circuit board trace antenna, with a measured ERP of 111.6 dB μ V/m at 3 meters and conducted RF power of +10.7 dBm as presented to the antenna. The calculated gain (measured over conducting ground plane) of this antenna, based on the ERP measurements is 5.7 dBi.

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: 10.70 (dBm)

Maximum peak output power at antenna input terminal: 11.749 (mW)

Antenna gain(typical): 5.7 (dBi)

Maximum antenna gain: 3.715 (numeric)

Prediction distance: 20 (cm)

Prediction frequency: 900 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 0.6 (mW/cm²)

Power density at prediction frequency: 0.008684 (mW/cm²)

Maximum allowable antenna gain: 24.1 (dBi)

Margin of Compliance at 20 cm = 18.4 dB

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EUT: EIM	IC #: 573R-THM5320R01	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 108.4 dB μ V/m, at 3 meters and conducted RF power of +10.5 dBm as presented to the antenna. The calculated gain of this antenna, based on the ERP measurements is 2.7 dBi.

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: 10.50 (dBm)

Maximum peak output power at antenna input terminal: 11.220 (mW)

Antenna gain(typical): 2.7 (dBi)

Maximum antenna gain: 1.862 (numeric)

Prediction distance: 20 (cm)

Prediction frequency: 900 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 0.6 (mW/cm²)

Power density at prediction frequency: 0.004157 (mW/cm²)

Maximum allowable antenna gain: 24.3 (dBi)

Margin of Compliance at 20 cm = 21.6 dB

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