## EXHIBIT 13. MPE CALCULATION

The following MPE calculations are based on a 1.8 centimeter inverted-F printed circuit board trace antenna, with a measured ERP of 119.8 dBµV/m, at 3 meters over a reflective ground plane, and conducted RF power of +20.71 dBm as presented to the antenna. The calculated gain of this antenna, based on the ERP measurements is 3.8 dB (119.8 – 95.23  - 20.71 = 3.86 rounded down to 3.8).

**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: | 21.00 | (dBm) |
| Maximum peak output power at antenna input terminal: | 125.893 | (mW) |
| Antenna gain(typical): | 3.8 | (dBi) |
| Maximum antenna gain: | 2.399 | (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: | 0.060080 | (mW/cm^2) |
| Maximum allowable antenna gain: | 16.0 | (dBi) |
| Margin of Compliance at     20     cm = | 12.2 dB | |