MPE Calculations

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1.0 SCOPE:

This Report Demonstrates Evaluation and Compliance for Human Exposure to Radiofrequency Electromagnetic Fields as Outlined by the Federal Communications Commission Office of Engineering and Technology Bulletin 65.

2.0 REVISION LEVEL:

DATE	COMMENTS	REVISION
11/22/2004	Created.	1.0

3.0 REFERANCE DOCUMENTS:

(A) **Limits for Maximum Permissible Exposure (MPE). Code of Federal Regulations Title 47, Volume 1, Sections 1.1310**
(B) **Limits for Maximum Permissible Exposure (MPE). Code of Federal Regulations Title 47, Volume 1, Sections 2.1093**
(C) **Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. OET Bulletin 67 Edition 97-01.**

4.0 CALCULATIONS:

The following worst case emissions are based on a PPt (Peak Power Total) measurement of 10.40 dBm into the antenna. And the worst case antenna gain on axis is found to be 3.64 dBi.

Total power into antenna:
   A) $Pt = 10.40 \text{ dBm} = 10^{(10.40 \text{ dBm}/10)} = 10.96 \text{ mW}$

Total effective isotropic radiated power at the Transmitter:

   B) $EIRP = 10.40 \text{ dBm} + 3.64 \text{ dBi} = 14.04 \text{ dBm}$

         $14.04 \text{ dBm} = 25.35 \text{ mW}$

Power density at a distance of 20 centimeters is:

C) $$S = \frac{EIRP}{4\pi R^2} = 5.04 \ \mu W/cm^2$$

Where S = Power density (mW/cm^2), EIRP = Equivalent isotropic radiated power (mW), R = Distance to the center of radiation of the antenna (cm)

5.0   CONCLUSION:

Based on the FCC Limits for Maximum Permissible Exposure (MPE) given in Table 1 of reference document (A) as 1 mW/cm^2 this device falls under the required limits.