

Control 

MPE Calculations

R33AVMMC11

1.0	SCOPE	3
2.0	REVISION LEVEL	4
3.0	REFERENCE DOCUMENTS	4
4.0	CALCULATIONS	5
5.0	CONCLUSION	6

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
1/21/2005	Created.	1.0

3.0 REFERENCE DOCUMENTS:

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

4.0 CALCULATIONS:

The AVM-MC1-B utilizes a low power 2.4 GHz radio located approx 1 cm behind the front panel plastic. The following worst case emissions are based on a PPt (Peak Power Total) measurement of 12.8 dBm. And the worst case antenna gain on axis is found to be 3.64 dBi.

Total radiated power at the Transmitter:

$$\text{A) } P_t = 12.8 \text{ dBm} + 3.64 \text{ dBi} = 16.4 \text{ dBm EIRP}$$

$$16.4 \text{ dBm EIRP} = .0441 \text{ Watts. (44.1mW)}$$

Power density at a distance of 10cm from the antenna is:

$$\text{B) } S = \text{EIRP} / 4\pi \cdot r^2$$

Where S is Power density in units of mW/cm² and EIRP is Equivalent Isotropic Radiated Power in units of mW and r is distance to the center of radiation of the antenna in units of cm

$$S = 44.1\text{mW}/(4 \pi (10\text{cm})^2) = .00351\text{mW}/\text{cm}^2$$

5.0 CONCLUSION:

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