RF Exposure Calculations

1. The limit for general population/uncontrolled environment above 1500 MHz is 1.0 mW/cm^2.

2. The Field Strength $E\ V/M = \sqrt{1.00 \times 3770} = 61.4$

3. The distance d to achieve the 1.0 mW/cm^2 power density is as follows

$$d = \frac{\sqrt{30 \times P \times G}}{E}$$

$$d = \frac{\sqrt{30 \times 0.0399\ W \times 1}}{61.4} = \frac{1.094}{61.4} = 1.78\,cm$$

RF Field Strength Calculations:

1. F .S. = 119.48 dBuV/m

2. $F.S. = antilog\ \frac{119.48}{20} = antilog\ 5.974 = 0.9419 V/M$

3. $ERP\ \frac{(0.9419)^2 \times 9}{49.2} = 162.3\ mW$

4. EIRP = 162.3 x 1.64 = 266.17 mW

5. Time Division Source Based Average Power

$$= 266.17 \times \frac{1.10mS\ (ontime\ slots + 0.40mS)}{10mS} = 266.17 \times .15 = 39.9\ mW$$

Conclusion:

The device complies with the MPE requirements by providing a safe separation distance between the antenna, including any radiating structure, and any persons (human body excluding hands, wrists, ankles, and feet).

Proposed RF Exposure Safety Information to Include in User's Manual:

WARNING: For compliance with the RF exposure requirements regulated by the FCC (Federal Communications Commission), the transmitter's antennae are contained within the EUT enclosure, and an additional separation distance of more than eight inches (20 cm) shall be maintained between the transmitter base enclosure and any part of the user's body.