

March 4, 1999

Federal Communications Commission  
Equipment Authorization Division  
7435 Oakland Mills Road  
Columbia, MD 21046

Subject: Maximum Permissible Exposure calculations for **FCC ID:NVC-BSR-0002**

To whom it may concern,

Whisper Communications is submitting a low power transmitter for the Whisper System RF Metering system. The unit uses a frequency hopping spread spectrum transmitter operating in the 902 - 928 MHz range.

Assuming a worst case of no duty cycle.

For an Isotropic radiator the surface area of a sphere can be used to determine the area over which the transmitter energy is radiated.

$$\text{Surface area of a sphere} = 4 \cdot \Pi \cdot \text{radius}^2$$

In the case where there is antenna gain, the worst case energy density is increased by the antenna gain. In this case, the exposure level for a controlled environment can be calculated as follows:

$$\text{MPE distance} = (\text{output power} \cdot \text{duty cycle} \cdot 10(\text{antenna gain}/10)) / (4 \cdot \Pi \cdot \text{Exposure Limit (mW/cm}^2\text{)})^{1/2}$$

**For a 6.0 dBi Antenna**

$$\begin{aligned} \text{NVC-BSR-0002 MPE distance} &= (1000 \text{ m W} \cdot 1 \cdot 3.98 / 4 \cdot 3.14 \cdot 5)^{1/2} \\ &= 7.96 \text{ cm} \\ &= 3.1 \text{ in} \end{aligned}$$

If you have any questions please do not hesitate to call me.

Sincerely,

Chris Byleckie  
Technical Director