

August 17, 1998

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

Subject: Maximum Permissible Exposure calculations for **FCC ID: EV9WAL2-4S1-01**

To whom it may concern,

Multipoint is submitting a low power transmitter for the Access Link. The unit has a low power direct sequence spread spectrum radio operating in the 2480 - 2483.5 MHz range with an output power of 76.9 mW.

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. The exposure level can be calculated as follows for the antenna gain:

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

EV9WAL2-4S1-01 MPE calculation

California Amplifier 21dBi QLP Parabolic Antenna

$$\begin{aligned} \text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 21.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 11.3 \text{ cm} \\ &= 4.45 \text{ in} \end{aligned}$$

California Amplifier 24dBi QLP Parabolic Antenna

$$\begin{aligned} \text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 24.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 12.1 \text{ cm} \\ &= 4.77 \text{ in} \end{aligned}$$

Gabriel 26 dBi Grid Parabolic Antenna

$$\begin{aligned} \text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 26.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 12.6 \text{ cm} \\ &= 4.96 \text{ in} \end{aligned}$$

Gabriel 21 dBi Solid Parabolic Antenna

$$\begin{aligned} \text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 21.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 11.3 \text{ cm} \\ &= 4.43 \text{ in} \end{aligned}$$

Gabriel 17 dBi Panel Antenna

$$\begin{aligned}\text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 17.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 10.2 \text{ cm} \\ &= 4.01 \text{ in}\end{aligned}$$

Cushcraft 7 dBi Panel Antenna

$$\begin{aligned}\text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 7.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 6.54 \text{ cm} \\ &= 2.57 \text{ in}\end{aligned}$$

Andrew 24 dBi Grid Parabolic Antenna

$$\begin{aligned}\text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 24.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 12.1 \text{ cm} \\ &= 4.77 \text{ in}\end{aligned}$$

COMSAT RSI 21 dBi Solid Parabolic Antenna

$$\begin{aligned}\text{MPE distance} &= (76.9 \text{ mW} \cdot 1 \cdot 21.0 / 4 \cdot 3.14 \cdot 1)^{1/2} \\ &= 11.3 \text{ cm} \\ &= 4.43 \text{ in}\end{aligned}$$

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

Sincerely,

Chris Byleckie
Technical Director
Electronic Compliance Laboratories