15.247 (b) (5) RF Exposure Requirements

RF Exposure – MPE Calculations (2400-2483.5 MHz Band)

Transmitter Power: 1 mW

Antenna Gain: 2.3 dB

Cable loss: 0 dB

Frequency range: 2400 - 2483.5 MHz

Assumptions

1. A single ¼ wavelength radiating antenna is assumed.

2. Closest exposure distance is assumed to be 2 cm.

Calculations

The following results shall be assumed to be accurate for the far-field only. These predictions will over-estimate power density in the near–field. Based on the use of a ¼ wavelength radiator, a distance of 2 cm is considered to be in the far-field for all cases.

$S = PG/4*PI*R^2$

P is 1 mW
G is 2.3 dB (Antenna gain – loss) or $10^{(2.3/10)}$ or 2.3

	R = (Distance in cm)				
	20cm	10cm	5cm	2cm	
S =	0.000351	0.001403	0.005614	0.035086	mW/cm^2

For Occupational/Controlled Exposure
        From 1,500 to 100,000 MHz, power density limit is **5 mW/cm^2 for 6 minutes**

For General Population/Uncontrolled Exposure
        From 1,500 to 100,000 MHz, power density limit is **1 mW/cm^2 for 30 minutes**

Conclusion: ***Meets MPE limits***