

RF Exposure Requirements

15.247 (b)(5)

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

Transmitter Power: 1.05 mW

Antenna Gain: 3 dB

Cable loss: 0 dB

Frequency range: 2400 - 2483.5 MHz

Assumptions

1. A single $\frac{1}{4}$ 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 $\frac{1}{4}$ 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 1.05 mW

G is 3 dB (Antenna gain – loss) or $10^{(3/10)}$ or 2.0

R is 5 cm

$$S = 0.041700 \text{ mW/cm}^2$$

For Occupational/Controlled Exposure

From 1,500 to 100,000 MHz, power density limit is **5 mW/cm² for 6 minutes**

For General Population/Uncontrolled Exposure

From 1,500 to 100,000 MHz, power density limit is **1 mW/cm² for 30 minutes**

Conclusion: ***Meets MPE limits***