

## 15.247 (2,b,5) RF Exposure Requirements

Reference CFR 47 Part 1.1307(b)(1)

RF Exposure – MPE Calculations (902 - 928 MHz Band)

Transmitter Power: 332 mW

Antenna Gain: 6 dB

Cable loss: 1 dB

Frequency range: 902 - 928 MHz

### Assumptions

1. A single  $\frac{1}{4}$  wavelength radiating antenna is assumed.
2. Closest exposure distance is assumed to be 20 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 20 cm is considered to be in the far-field for all cases.

$$S = PG/4\pi R^2$$

P is 332 mW

G is 5 dB (Antenna gain – loss)

R is 20 cm

$$S = 0.209 \text{ mW/cm}^2$$

For Occupational/Controlled Exposure

From 300 to 1500 MHz, power density limit is  $f/1500 \text{ mW/cm}^2$   
@ 902 MHz, power density limit is  $3.007 \text{ mW/cm}^2$

For General Population/Uncontrolled Exposure

From 300 to 1500 MHz, power density limit is  $f/1500 \text{ mW/cm}^2$   
@ 902 MHz, Power density limit is  $0.601 \text{ mW/cm}^2$

Conclusion: ***Meets MPE limits***