



3.8.1 RF Exposure – MPE Calculations

Input

Transmitter Power: 250 mW

Antenna Gain: 3 dB

Cable loss: 2 dB @ 806– 825 MHz
2 dB @ 851 – 870 MHz

Frequency range: 806-825 MHz and MHz

Assumptions

1. A single $\frac{1}{4}$ wavelength radiating antenna is assumed.
2. Closest exposure distance is assumed to be 20 cm



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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.

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

@ 806-825 MHz

P is 250mW

G is 2 dB (Antenna gain – loss) or $10^{(2/20)}$ or 1.25

R is 20 cm

$$\underline{S = 0.056 \text{ mW/cm}^2}$$

For Occupational/Controlled Exposure

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

@ 806MHz, power density limit is 2.69 mW/cm^2

For General Population/Uncontrolled Exposure

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

@ 806MHz, Power density limit is 0.54 mW/cm^2

Conclusion: Meets MPE limits