

RF Exposure Requirements: **§1.1307(b)(1) and §1.1307(b)(2):** Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

RF Radiation Exposure Limit: **§1.1310:** As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter. EUT's operating in the frequency range 300-1500MHz the maximum RF exposure is $f/1500 \text{ mW/cm}^2$ where f is the frequency of the carrier. Above 1500MHz the RF exposure limit is 1 mW/cm^2 .

MPE Limit Calculation: @806-869 MHz; highest conducted power = 26.9dBm (peak)
therefore, **Limit for Uncontrolled exposure: 0.53 mW/cm^2 or 5.3 W/m^2**

EUT maximum EIRP per users manual = 2500mW (34.0dBm), therefore the maximum antenna gain in this band = 7.1dBi

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R^2 \quad \text{or} \quad R = \sqrt{PG / 4\pi S}$$

where, S = Power Density (1 mW/cm^2)
 P = Power Input to antenna (489.7mW)
 G = Antenna Gain (5.12 numeric)

$$S = (489.7 * 5.12) / (4 * 3.14 * 20.0^2) = 0.50 \text{ mW/cm}^2$$

MPE Limit Calculation: @ 896-941MHz; highest conducted power = 25.7dBm (peak)
therefore, **Limit for Uncontrolled exposure: 0.58 mW/cm^2 or 5.8 W/m^2**

EUT maximum EIRP per users manual = 2500mW (34.0dBm), therefore the maximum antenna gain in this band = 8.3dBi

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R^2 \quad \text{or} \quad R = \sqrt{PG / 4\pi S}$$

where, S = Power Density (1 mW/cm^2)
 P = Power Input to antenna (371.5mW)
 G = Antenna Gain (6.67 numeric)

$$S = (371.5 * 6.67) / (4 * 3.14 * 20.0^2) = 0.50 \text{ mW/cm}^2$$

MPE Limit Calculation: @ 1850-1995MHz; highest conducted power = 27.15dBm (peak) therefore, **Limit for Uncontrolled exposure: 1.0 mW/cm² or 10 W/m²**

EUT maximum EIRP per users manual = 2500mW (34.0dBm), therefore the maximum antenna gain in this band = 6.85dBi

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R^2 \quad \text{or} \quad R = \sqrt{PG / 4\pi S}$$

where, S = Power Density (1 mW/cm²)
P = Power Input to antenna (518.8mW)
G = Antenna Gain (4.84 numeric)

$$S = (518.8 \times 4.84) / (4 \times 3.14 \times 20.0^2) = 0.50 \text{ mW/cm}^2$$