



11. RF Exposure Requirements

RF Exposure Requirements: §90.1217, §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.

MPE Limit Calculation: EUT's operating frequencies @ 4950 - 4980 MHz;
conducted power = 22.67dBm (peak) with maximum antenna gain of 18dBi.
Therefore, **Limit for Uncontrolled exposure: 1 mW/cm² or 10 W/m²**

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 (10 W/m²)
P = Power Input to antenna (0.185 Watts)
G = Antenna Gain (63 numeric)
R = distance to the center of radiation of the antenna (in meter)

$$R = \sqrt{0.185W * 63dB} / 4 * 3.14 * (10 W/m^2) = 0.305m$$

The distance between the human and the RF antenna should not be less than 0.305m.