

Maximum Permissible Exposure

FCC, Part 90 Subpart C §90.1217

Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4\pi d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10^{(G \text{ (dBi)}/10)}$$

4.9 GHz 20 MHz Channel = Max. Peak Output Power +18.20 dBm, 66.1 mW

Max. Antenna Gain = 14 dBi, **25.12 numeric**

The EUT belongs to the Occupational/Controlled Exposure class of devices; power density limit is 5.0mW/cm²

Maximum Gain Antennas – Calculated Safe Distance @ 1 mW/cm²

Antenna Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm ² Limit(cm)	Minimum Separation Distance (cm)
14.0	25.12	+18.20	66.1	11.5	35.0

Note: for 4.9 GHz mobile or fixed location transmitters the minimum separation distance is 35 cm, even if calculations indicate the MPE distance to be less.

Specification

Maximum Permissible Exposure Limits

§90.1217 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 levels in excess of the Commission's guidelines. See §1.1307 (b)(1) of this chapter.

Limit S = 1mW / cm² from 1.310 Table 1