



Maximum Permissible Exposure

**FCC, Part 15 Subpart C §15.247(b)(5)
Industry Canada RSS-210 §14**

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)

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

P (worst case) = +20.52 dBm, **112.7mW**, Antenna Gain = 15.0 dBi / **31.6 numeric**

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm²

Antenna Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated RF Exposure at d=20cm (mW/cm ²)	Limit (mW/cm ²)
15.0	31.6	+20.52	112.7	0.71	1

Specification

Maximum Permissible Exposure Limits

§15.247 (b)(5) 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

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

RSS-210 §14 Before equipment certification is granted, the procedures of RSS-102 must be followed concerning exposure of humans to RF fields.

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	±1.33 dB
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