

November 18, 2009

Maximum Permissible Exposure

FCC, Part 15 Subpart C §15.247(i)
Industry Canada RSS-Gen §5.5

Calculations for Maximum Permissible Exposure Levels

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

$\text{EIRP} = P * G$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

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

P (worst case) = +23.76 dBm, 237.7 mW

Antenna Gain (Worst Case) = 2.0 dBi, 1.58 numeric

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is $1.0 \text{ mW}/\text{cm}^2$

The MPE calculations are calculated using the maximum allowable power levels calculated for each antenna in Section 5.1.2 "Peak Output Power" of the report.

Antenna Gain (dBi)	Numeric Gain (numeric)	Max Allowable Peak Power (dBm)	Max Allowable Peak Power (mW)	Calculated Safe Distance at $1 \text{ mW}/\text{cm}^2$ (cm)	Minimum Separation Distance (cm)
2.0	1.58	+23.76	237.7	5.5	20*

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

Specification - Maximum Permissible Exposure Limits

§15.247(i) 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.

Limit $S = 1 \text{ mW} / \text{cm}^2$ 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.