

7.10 Maximum Permissible Exposure

Power density is given by:

$$S = \text{EIRP} / (4 * \text{PI} * \text{D}^2)$$

where

S: Power density (W/m²)

EIRP: Equivalent Isotropic Radiated Power (W)

D: Separation distance (m)

Power density in units of W/m² is converted to units of mW/cm² by dividing by 10.

Limits

FCC Limit: §1.1310 Table 1 (B), the maximum value of S = 1.0mW/cm²

IC Limit: IC Safety Code 6, Section 2.2 Table 5 Column 4, S = 10 W/m²

Result

Band	Mode	Separation Distance (m)	Maximum Output Power (dBm)	Antenna Gain (dBi)	FCC Power Density (mW/cm ²)	IC Power Density (W/m ²)
2.4GHz	WLAN	0.20	18.78	-4.48	0.005355	0.05355

Sample Calculation for FCC:

$$\begin{aligned} S(\text{mW/cm}^2) &= \text{EIRP} / (4 * \text{PI} * \text{D}^2) / 10 \\ &= 10^{((-4.48+18.78-30)/10)} / (4 * \text{PI} * 0.2^2) / 10 \\ &= 0.005355 \end{aligned}$$