

February 19, 2009

Maximum Permissible Exposure

FCC, Part 90 Subpart C §90.1217

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

The Proxim 3650 has a single transmitter. The peak power in the table below is calculated by assuming a worst case scenario for the maximum gain antenna and output power. The calculated separation distance is for worst case 7 MHz bandwidth (higher power level).

where the two transmitters are operating simultaneously in the same band. The Peak Power in mW is calculated by taking the maximum allowable conducted power in each band and multiplying by 2.

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

| Freq. Band (GHz) | Antenna Gain (dBi) | Numeric Gain (numeric) | Max Peak Output Power (dBm) | Peak Output Power (mW) | Calculated Safe Distance @ $1\text{mW}/\text{cm}^2$ Limit(cm) | Minimum Separation Distance (cm) |
|------------------|--------------------|------------------------|-----------------------------|------------------------|---|----------------------------------|
| 3650 | 18 | 63.1 | +20.4 | 109.6 | 23.5 | 23.5 |

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 = $5\text{mW} / \text{cm}^2$ 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.