

MAXIMUM PERMISSIBLE EXPOSURE FOR SUBPART C, SECTION 15.249

Calculations

Power density at the specific separation:

$$\begin{aligned} S &= PG / (4R^2\pi) \\ S &= EIRP / (4R^2\pi) \\ S &= (3.999) / (4 * 20^2 * \pi) \\ S &= 0.0007956 \text{ mW/cm}^2 \text{ (at 20 cm)} \\ \text{Limit} &= 1 \text{ mW/cm}^2 \end{aligned}$$

where

S = Maximum power density (mW/cm^2)
 P = Power input to the antenna (mW) –
 G = Numeric power gain of the antenna
 R = distance to the center of the radiation of the antenna (20 cm = limit for MPE)
EIRP = Equivalent Isotropic Radiated Power in mW
EIRP (dBm) = dBuV/m + [20 Log (Test Distance in Meters)] - 104.77
The worst case is 101.25 dBuV/m peak at 3 Meters = 3.999 mW EIRP

The maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density at 20 cm does not exceed the 1 mW/cm^2 limit. Therefore, the exposure condition is compliant with FCC rules.