

Environmental evaluation and exposure limit according to FCC CFR 47part 1, §1.1307, §1.1310

Limit for power density for general population/uncontrolled exposure is 0.6 mW/cm².

$$\text{The power density } P \text{ (mW/cm}^2\text{)} = \frac{P_T}{4\pi r^2}, \quad \text{where}$$

P_T is the maximum equivalent isotropically radiated power (EIRP).

In our case P_T is 23.64 dBm + 3 dBi (antenna gain) = 26.64 dBm = 461.3 mW.

$$0.6 \text{ (mW/cm}^2\text{)} = 461.3 \text{ mW} / 4\pi r^2$$

The minimum safe distance “r”, where RF exposure does not exceed FCC permissible limit, is 7.8 cm.

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{26.64 / (0.6 \times 4 \times 3.14)} = 7.8 \text{ (cm)}.$$

Hence, no safety hazard exists for human being.