

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 0.61 mW/cm².

The power density P (mW/cm²) = $\frac{P_T}{4\pi r^2}$, where

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

In our case P_T is 21.13 dBm + 6 dBi (antenna gain) = 27.13 dBm = 516.4 mW.

$$0.61 \text{ (mW/cm}^2\text{)} = 516.4 \text{ mW} / 4\pi r^2$$

The minimum safe distance “r”, where RF exposure does not exceed FCC permissible limit, is 8.2 cm.

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{516.4 / (0.61 \times 4 \times 3.14)} = 8.2 \text{ (cm)}.$$

Hence, no safety hazard exists for human being.