

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

The transceiver is classified as fixed, the calculation was done to confirm a safe distance.

Limit for power density for general population/uncontrolled exposure is 1 mW/cm² for 1500 -100000 MHz frequency range.

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

P_T is the transmitted power, which is equal to the peak transmitter output power plus maximum antenna gain. The maximum equivalent isotropically radiated power EIRP is

$$P_T = 37.27 \text{ dBm} + 18 \text{ dBi} = 55.27 \text{ dBm} = 336512 \text{ mW}, \text{ where}$$

37.27 dBm is the EUT maximum output power,
18 dBi – antenna gain.

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{336512 / 12.56} = 164 \text{ cm} \ll 2 \text{ m} .$$

General public cannot be exposed to dangerous RF level.