

RF Exposure Evaluation according to FCC 47 CFR part 1 §1.1307

The transceiver is classified as fixed. The calculation was done for minimum safety distance.

Limit for power density for general population/uncontrolled exposure is 1 mW/cm² (for 1500 –100,000 MHz frequency range).

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

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

$P_T = 33 \text{ dBm} + 22 \text{ dBi} = 55 \text{ dBm} = 316228 \text{ mW}$, where
33 dBm is the EUT maximum output power;
22 dBi –antenna gain.

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

$$r = \sqrt{P_T / (4\pi \times 12.56)} = \sqrt{316228 / 12.56} \approx 160 \text{ cm.}$$

General public will not be exposed to dangerous RF level.