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

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

Limit for power density for general population/uncontrolled exposure is 1 mW/cm^2 for 1500 -100000 MHz frequency range:

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

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

1) 4942.5 – 4987.5 MHz band

The peak output power of 7.87 dBm with 17 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

7.87 dBm + 17 dBi = 24.87 dBm, which is equal to 307 mW.

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

$$r = \text{sqrt}\ \{ P_T / (Px4\pi)\} = \text{sqrt}\ \{307 / 12.56\} \cong 5\ \text{cm} << 2\ \text{m}\ .$$

2) 5730.0 – 5845.0 MHz band

The peak output power of 29.74 dBm with 17 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

29.74 dBm + 17 dBi = 46.74 dBm, which is equal to 47206 mW.

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

$$r = \text{sqrt}\ \{ P_T / (Px4\pi)\} = \text{sqrt}\ \{47206 / 12.56\} = 61\ \text{cm} << 2\ \text{m}\ .$$

General public cannot be exposed to dangerous RF level.