

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

The calculation was done to confirm required safe distance for fixed device.

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

The power density $P \text{ (mW/cm}^2) = P_T / 4\pi r^2$, where P_T is the maximum equivalent isotropically radiated power (EIRP).

1) The peak output power of 21.65 dBm with 20.5 dBi total antenna gain (please refer to Table 6.6.2 of the test report TELRAD_FCC_IC_24990_RS197) corresponds to the equivalent isotropically radiated power (EIRP) of

$$21.65 \text{ dBm} + 20.5 \text{ dBi} = 42.15 \text{ dBm}, \text{ which is equal to } 16405.9 \text{ mW}.$$

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{16405.9 / 12.56} = 36 \text{ cm}.$$

2) In the transmit mode of 2 carrier 1sector (please refer to Table 6.6.2 of the test report) - 2 carriers occupy twice the BW- the total power will be 3 dB higher = 45.15 dBm = 32734 mW

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{32734 / 12.56} = 51 \text{ cm}.$$

General public cannot be exposed to dangerous RF level, a fixed device is located at least 2 m safe distance from the persons.