

RF Exposure Evaluation according to RSS-102 and FCC 47 CFR part 1 §1.1307

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

The device operating frequency range is 2412 – 2462 MHz. Limit for power density for general population/uncontrolled exposure is 1 mW/cm^2 (for 1500 – 100,000 MHz frequency range).

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

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

$P_T = 25.47 \text{ dBm} + 19 \text{ dBi} = 44.47 \text{ dBm} = 27990 \text{ mW}$, where
25.47 dBm is the EUT maximum output power, obtained at low frequency 2412 MHz with 64QAM modulation and 130 Mbps bit rate, 20 MHz CBW;
19 dBi – external antenna gain.

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{27990 / 12.56} = 47 \text{ cm}.$$

General public will not be exposed to dangerous RF level.