

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 5730 – 5845 MHz. Limit for power density for general population/uncontrolled exposure is 1 mW/cm² (for 1500 –100,000 MHz frequency range).

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

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

$P_T = 29.95 \text{ dBm} + 28 \text{ dBi} = 57.95 \text{ dBm} = 623734 \text{ mW}$, where
29.95 dBm is the EUT maximum output power, obtained at low frequency 5735 MHz with BPSK modulation and 13 Mbps bit rate;
28 dBi – antenna gain.

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{623734 / 12.56} = 223 \text{ cm.}$$

General public will not be exposed to dangerous RF level if the EUT, fixed device, will be used at a distance of more than 223 cm from humans.

Warning in the User Manual shall be provided.