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

Limit for power density for general population/uncontrolled exposure is f/1500 mW/cm^2 for 300 – 1500 MHz frequency range:

P = 1393.5/1500 = 0.93 mW/cm^2

1. The **EasyST** transceiver is classified as mobile, the calculation was done for power density at 20 cm distance.

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

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

25.15 dBm + 6 dBi = 31.15 dBm = 1303.2 mW, where

25.15 dBm is the EUT maximum output power,
6 dBi – antenna gain.

The power density P at 20 cm (minimum safe distance, required for mobile devices), calculated as follows:

$$P = 1303.2\ mW / 4\pi\ (20\ cm)^2 = 0.26\ mW/cm^2 < 0.93\ mW/cm^2$$

General public cannot be exposed to dangerous RF level.

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

The maximum equivalent isotropically radiated power EIRP is

P_T = 25.15 dBm +18 dBi = 43.15 dBm = 20654 mW, where

25.15 dBm is the EUT maximum output power,
18 dBi – antenna gain.

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

$$r = \text{sqrt}\ \{ P_T / (P x 4\pi)\} = \text{sqrt}\ \{20654 / (0.93 \times 12.56)\} = 42\ cm << 2\ m\ .$$

General public cannot be exposed to dangerous RF level.