

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

The booster may be installed indoors or outdoors as stated in the User's manual page 9, the calculation was done to confirm a safe distance.

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

$$P = 758/1500 = 0.5 \text{ mW/cm}^2$$

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

$P_T$  is the transmitted power, which is equal to the peak transmitter output power plus maximum antenna gain.

### **Indoor antenna installation**

The maximum equivalent isotropically radiated power EIRP is

$$P_T = 32.61 \text{ dBm} + 0.2 \text{ dBi} = 32.81 \text{ dBm} = 1910 \text{ mW}, \text{ where}$$

32.61 dBm is the EUT maximum output power in DL mode in 758-775 MHz with C4FM modulation;  
0.2 dBi – antenna assembly gain.

The EUT maximum output power in UL mode is 28.55 dBm (in 788-805 MHz with iDEN QAM modulation), that is less than in DL mode.

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{1910 / (0.5 \times 12.56)} = 17.4 \text{ cm}.$$

### **Outdoor antenna installation**

The maximum equivalent isotropically radiated power EIRP is

$$P_T = 32.61 \text{ dBm} + 6 \text{ dBi} = 38.61 \text{ dBm} = 7261 \text{ mW}, \text{ where}$$

32.61 dBm is the EUT maximum output power in DL mode in 758-775 MHz with C4FM modulation;  
6 dBi – antenna assembly gain.

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{7261 / (0.5 \times 12.56)} = 34 \text{ cm}.$$

A warning about a safe distance is contained in the user manual.