

## **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 V, 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

$$P_T = 35.73 \text{ dBm} + 0.2 \text{ dBi} = 35.93 \text{ dBm} = 3917 \text{ mW}, \text{ where}$$

35.73 dBm is the EUT maximum conducted output power in DL mode in 851-869 MHz with analog FM modulation;

0.2 dBi – antenna assembly gain.

The EUT maximum conducted output power in UL mode is 32.64 dBm (in 806-824 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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{3917 / (0.5 \times 12.56)} = 25 \text{ cm}.$$

### **Outdoor antenna installation**

The maximum equivalent isotropically radiated power EIRP is

$$P_T = 35.73 \text{ dBm} + 7 \text{ dBi} = 42.73 \text{ dBm} = 18750 \text{ mW}, \text{ where}$$

35.73 dBm is the EUT maximum conducted output power in DL mode in 851-861 MHz with analog FM modulation;

7 dBi – antenna assembly gain (please refer to page 8 of User\_manual\_27215A).

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

$$r = \sqrt{P_T / (P \times 4\pi)} = \sqrt{18750 / (0.5 \times 12.56)} = 54.6 \text{ cm} \approx 55 \text{ cm}.$$

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