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 1 mW/cm^2 for 1500 -100000 MHz frequency range:

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

P_T is the maximum equivalent isotropically radiated power (EIRP).

1) The calculation to confirm compliance with power density limit at 20 cm distance for subscriber mobile unit with 9.5 dBi antenna is as follows:

The peak output power of 23.38 dBm with 9.5 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

$$23.38 \text{ dBm} + 9.5 \text{ dBi} = 32.88 \text{ dBm, which is equal to 1941 mW.}$$

The power density at 20 cm calculated as follows:

$$1941 \text{ mW} / 4\pi \text{ (20 cm)}^2 = 0.39 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

General public cannot be exposed to dangerous RF level.

2) To check a safe distance for subscriber mobile unit with 22.5 dBi antenna the following calculation was done:

The peak output power of 23.38 dBm with 22.5 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

$$23.38 \text{ dBm} + 22.5 \text{ dBi} = 45.88 \text{ dBm, which is equal to 38726 mW.}$$

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

$$r = \text{sqrt} \{ P_T / (Px4\pi)\} = \text{sqrt} \{38726 / 12.56\} = 56 \text{ cm.}$$

Warning about the safe distance is given in User manual pages 10, 25.

3) To confirm compliance with a safe distance for subscriber fixed unit the following calculation was done:

The peak output power of 23.38 dBm with 22.5 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

$$23.38 \text{ dBm} + 22.5 \text{ dBi} = 45.88 \text{ dBm, which is equal to 38726 mW.}$$

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

$$r = \text{sqrt} \{ P_T / (Px4\pi)\} = \text{sqrt} \{38726 / 12.56\} = 56 \text{ cm} \ll 2 \text{ m .}$$

General public cannot be exposed to dangerous RF level.