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

1) The calculation was done to confirm compliance with power density limit at 20 cm distance for subscriber mobile unit.

Limit for power density for general population/uncontrolled exposure is 1 mW/cm^2 for 1500 -100000 MHz frequency range:

The power density **P (mW/cm^2) = P$_T$ / 4π r^2**, where

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

The peak output power of 25.2 dBm with 6 dBi antenna gain corresponds to the equivalent isotropically radiated power (EIRP) of

$$25.2 \text{ dBm} + 6 \text{ dBi} = 31.2 \text{ dBm, which is equal to 1318 mW.}$$

The power density at 20 cm calculated as follows:

$$1318 \text{ mW} / 4\pi (20 \text{ cm})^2 = 0.26 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

General public cannot be exposed to dangerous RF level.

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

The EIRP is 25.2 dBm + 18 dBi = 43.2 dBm, which is equal to 20892 mW.

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

$$r = \text{sqrt} \{ P_T / (Px4\pi)\} = \text{sqrt} \{20892 / 12.56\} = 41 \text{ cm} \ll 2 \text{ m} .$$

General public cannot be exposed to dangerous RF level.