R.F Exposure/Safety Calculation for 1000-CELL-PCS4E-HL W-CDMA \ GSM

The E.U.T. is a Remote Hub Unit which converts optical signals to RF and feeds the RF signal(s) to the antennas in the remote areas in order to provide the required coverage. The typical distance between the E.U.T. and the general population is >20cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 1960 MHz is: $1\frac{mW}{cm^2}$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P_t- Transmitted Power 221mW, Peak.

G_T- Antenna Gain 7dBi = 5.

R- Distance from Transmitter using 20cm worst case

(c) Peak power density (time averaging) at worst case continues transmission:

$$S_{AV} = \frac{221 \times 5}{4\pi(20)^2} = 0.219\frac{mW}{cm^2}$$

(d) This result is under the FCC limit.