R.F Exposure/Safety

The E.U.T. is installed in fixed locations for application of transmitting data of electricity consumption to central data collection offices. The distance between the E.U.T. and the general population is at least several meters.

Calculation of Maximum Permissible Exposure (MPE)
Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 915 MHz

$$S = \frac{915}{1500} = 0.61 \frac{mW}{cm^2}$$

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 1000mw (Peak)

G_T- Antenna Gain, 1(0dB)

R- Distance from Transmitter using 100cm worst case

(c) The peak power density is :

$$S_p = \frac{10^3 \, x1}{4\pi (100)^2} = 7.96 \frac{mW}{cm^2}$$

(d) The duty cycle of transmission in actual worst case is 150 msec pulses per 60 sec intervals.

The average power over 30 minutes is:

$$P_{AV} = \frac{1000 \times 0.15}{60} = 2.5 mW$$

(e) The averaged power density of the E.U.T. is:

$$S_{AV} = \frac{2.5 X1}{4\pi x(100)^2} = 2 X 10^{-5} \frac{mW}{cm^2}$$

(f) This is significantly below the FCC, MPE limit (0.61 mW/cm[2)].