

R.F Exposure/Safety

The E.U.T. is used in fixed installations for security/alarm applications.

In typical use, the E.U.T. is installed on walls, 2.4m above the floor.

The calculation below, considers a worst case application where the distance between the general population and the E.U.T. is 30 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 2441 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 19 dBm = 79.43 mW (Peak)

G_t - Antenna Gain, 2 dBi = 1.58

R- Distance from Transmitter using 30 cm worst case

(c) The peak power density is :

$$S_p = \frac{79.43 \times 1.58}{4\pi \times 30^2} = 0.011 \frac{mW}{cm^2}$$

(d) The duty cycle of transmission in actual worst case is 0.5.

The average power over 30 minutes is:

$$P_{AV} = 79.43 \times 0.5 = 39.715 mW$$

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

$$S_{AV} = \frac{39.715 \times 1.58}{4\pi \times 30^2} = 5.55 \times 10^{-3} \frac{mW}{cm^2}$$

(f) This is 3 orders of magnitude below the FCC limit.