

Revised MPE Calculation for FCC ID#RUF150704 Following Antenna Change

The E.U.T. is a door/window mounted, fixed installation. The typical distance between the E.U.T. and the general population in normal use is at least 0.5m.

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

- (a) Considering the worst case FCC limit at the operating frequency of 903.5 MHz the FCC limit is:

$$S = \frac{903.5}{1500} = 0.6 \frac{mW}{cm^2}$$

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 given by:

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

P_t- Transmitted Power: +15dBm =31.6mW (max. measured power,
+12.6dBm at 913.5 MHz)

G_t- Antenna Gain: -6dBi = 0.25

R- Distance from Transmitter using 20cm worst case

- (c) The peak power density is :

$$S_p = \frac{31.6 \times 0.25}{4\pi(20)^2} = 1.57 \times 10^{-3} \frac{mW}{cm^2}$$

- (d) The duty cycle of transmission in actual worst case is 10msec “on” and 200msec “Off”.

The average power over 30 minutes is:

$$P_{AV} = \frac{31.6 \times 10}{200} = 1.58mW$$

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

$$S_{AV} = \frac{1.58 \times 0.025}{4\pi(20)^2} = 7.86 \times 10^{-5} \frac{mW}{cm^2}$$

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