R.F. Exposure/Safety MPE Calculation

Typical use of the E.U.T. is repeating signals in the 1930-1995 MHz frequency band. The E.U.T. is wall mounted. The distance between the E.U.T. and the user in the worst case application, is 1 m.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

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

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 (Peak) 355 mW= 25.5 dBm

G$_T$- Antenna Gain, 7 dBi = 5

R- Distance from Transmitter using 1 m worst case

(c) The peak power density is :

$$S_p = \frac{355 \times 5}{4\pi (100)^2} = 14 \times 10^{-3} \frac{mW}{cm^2}$$

(d) The duty cycle of transmission in actual worst case is 100%.

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

$$S_{AV} = 14 \times 10^{-3} \frac{mW}{cm^2}$$

(f) This level is significantly below the FCC limit.