R.F Exposure/Safety for Nozzle Reader

Typical use of the E.U.T. is transmission of vehicle information to a Wireless Gateway Terminal. The typical placement of the E.U.T. is on a fuel pump nozzle. The typical distance between the E.U.T. and the user in the typical application, is 5 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 2440 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

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

$P_{t+}\, G_t$- = Transmitted Power 6.75 mw (Peak)

R- Distance from Transmitter using 5 cm worst case

(c) The peak power density is :

$$S_p = \frac{6.75}{4\pi(5)^2} = 0.215\frac{mW}{cm^2}$$