1. R.F Exposure/Safety 5GHz Transmitter 802.11b/g+802.11a Signals

Typical use of the E.U.T. is repeating WiFi signals for DAS. The typical placement of the E.U.T. is on a wall near the ceiling. The typical 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 5745 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 (Peak) 77.8 mW= 18.91 dBm

G_T- Antenna Gain, 7 dBi = 5

R- Distance from Transmitter using 1 m worst case

(c) The peak power density is :

$$S_p = \frac{77.8 \times 5}{4\pi(100)^2} = 3.1 \times 10^{-3} \frac{mW}{cm^2}$$

(d) The duty cycle of transmission in actual worst case is 50%.

The average power source is:

$38.9mW$

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

$$S_{AV} = \frac{38.9 \times 5}{4\pi(100)^2} = 1.55 \times 10^{-3} \frac{mW}{cm^2}$$

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

2. R.F Exposure/Safety 5GHz Transmitter 802.11b/g+802.11a + CELL + PCS Signals

Typical use of the E.U.T. is repeating WiFi signals for DAS. The typical placement of the E.U.T. is on a wall near the ceiling. The typical 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

(f) FCC limits at 5745 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.

(g) 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) 85.1 mW= 19.3 dBm

G_T- Antenna Gain, 7 dBi = 5

R- Distance from Transmitter using 1 m worst case

(h) The peak power density is :

$$S_p = \frac{85.1 \times 5}{4\pi(100)^2} = 3.4 \times 10^{-3} \frac{mW}{cm^2}$$

(i) The duty cycle of transmission in actual worst case is 50%.

The average power source is:

$42.55mW$

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

$$S_{AV} = \frac{42.55 \times 5}{4\pi(100)^2} = 1.7 \times 10^{-3} \frac{mW}{cm^2}$$

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