

R.F Exposure/Safety Calculation for LPR

The E.U.T. is ceiling mounted. The typical distance between the E.U.T. and the general population is >50cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1310 Requirements

- a)
1. (WCS) FCC limit at 2357.5 MHz is: $1 \frac{mW}{cm^2}$
 2. (PCS) FCC limit at 1940.0 MHz is: $1 \frac{mW}{cm^2}$
 3. (AWS) FCC limit at 2155.0 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 Peak Power (worst case) (antenna gain already included)

R- Distance from Transmitter 50 cm

(c) Peak power density at worst case continuous transmission:

Band	Modulation	P _t (dBm)	P _t (mW)	R (cm)	S _{AV} (mW/cm ²)	Limit (mW/cm ²)
WCS	QPSK	22.01	159	50	0.005061	1
	16QAM	22.01	159	50	0.005061	1
	64QAM	22.27	169	50	0.005379	1
PCS	QPSK	25.51	356	50	0.011332	1
	16QAM	25.56	360	50	0.011459	1
	64QAM	25.56	360	50	0.011459	1
AWS	QPSK	25.66	368	50	0.011714	1
	16QAM	25.71	372	50	0.011841	1
	64QAM	25.66	368	50	0.011714	1

(d) This is below the FCC limit.