R.F Exposure/Safety Calculation for RXU67

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

1. FCC limit 600 MHz Band is: f/1500 = $0.413\,\frac{mw}{cm^2}$

2. FCC limit for 700 MHz Band is: f/1500 = $0.487\,\frac{mw}{cm^2}$

3. FCC limit at 700FN MHz is: f/1500 = $0.507\,\frac{mw}{cm^2}$

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)
600 MHz	16QAM	21.18	131.22	50	0.00418	0.413
	64QAM	21.89	154.53	50	0.00492	
	256QAM	21.94	156.31	50	0.00498	
	QPSK	21.86	153.46	50	0.00488	
700 MHz	16QAM	21.27	133.97	50	0.00426	0.487
	64QAM	21.27	133.97	50	0.00426	
	256QAM	21.95	156.68	50	0.00499	
	QPSK	21.82	152.05	50	0.00484	
700FN MHz	16QAM	21.90	154.88	50	0.00493	0.507
	64QAM	21.69	147.57	50	0.00470	
	256QAM	21.71	148.25	50	0.00472	
	QPSK	21.75	149.62	50	0.00476	

(d) This is below the FCC limit.