

R.F Exposure/Safety Calculation for RAU5

FCC ID: OJF1RAU5

The E.U.T. is rack or wall 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) (LTE) FCC limit at 747.0 MHz is: $f / 1500 = 0.498 \frac{mW}{cm^2}$

(b) (CELL) FCC limit at 892.8 MHz is: $f / 1500 = 0.595 \frac{mW}{cm^2}$

(c) (ESMR) FCC limit at 867.8 MHz is: $f / 1500 = 0.579 \frac{mW}{cm^2}$

(d) (PCS) FCC limit at 1962.5 MHz is: $1 \frac{mW}{cm^2}$

(e) (AWS) FCC limit at 2132.5 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)

G_t- Antenna Gain, 12.5dBi= 17.8 numeric

R- Distance from Transmitter 50 cm

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

Band	Modulation	Pt (mW)	Antenna type	G _T (dBi)	G _T numeric	R (cm)	S _{AV} (mW/cm ²)	Spec (mW/cm ²)
CELL	LTE 64QAM	47.9	External	12.5	17.8	50	0.02714	0.595
	GSM	47.9	External	12.5	17.8	50	0.02714	0.595
	W-CDMA	46.8	External	12.5	17.8	50	0.026516	0.595
ESMR	LTE 64QAM	46.8	External	12.5	17.8	50	0.026516	0.579
	GSM	43.7	External	12.5	17.8	50	0.02476	0.579
	W-CDMA	46.8	External	12.5	17.8	50	0.026516	0.579
PCS	LTE 64QAM	151	External	12.5	17.8	50	0.085555	1
	GSM	138	External	12.5	17.8	50	0.07819	1
	W-CDMA	141	External	12.5	17.8	50	0.079889	1
LTE	LTE 64QAM	40.7	External	12.5	17.8	50	0.02306	0.498
	LTE 16QAM	43.7	External	12.5	17.8	50	0.02476	0.498
	LTE QPSK	44.7	External	12.5	17.8	50	0.025327	0.498
AWS	LTE 64QAM	85.1	External	12.5	17.8	50	0.048217	1
	GSM	95.5	External	12.5	17.8	50	0.054109	1
	W-CDMA	95.5	External	12.5	17.8	50	0.054109	1

(d) This is below the FCC limit.