

R.F Exposure/Safety Calculation for FCC ID: OJFDMRUDPAM8 (CELL ESMR)

The E.U.T. is rack or wall mounted. The typical distance between the E.U.T. and the general population is >120cm.

Calculation of Maximum Permissible Exposure (MPE) Based on Section 1.1310 Requirements

(a) FCC limit at 878MHz is: $f/1500 = 0.5853 \text{ mW/cm}^2$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(c) 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 (worst case) , 12.5dBi= 17.8 numeric

R- Distance from Transmitter 120 cm

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

generation	Modulation	Pt (dBm)	Pt (W)	Antenna type	G_T (dBi)	G_T numeric	R (cm)	S_{AV} (mW/cm ²)	Limit (mW/cm ²)
5G	16QAM	33.51	2.244	External	12.5	17.8	120	0.22073	0.5853
	64QAM	33.21	2.094	External	12.5	17.8	120	0.20598	0.5853
	256QAM	33.96	2.489	External	12.5	17.8	120	0.24483	0.5853
	QPSK	34.51	2.825	External	12.5	17.8	120	0.27788	0.5853
4G	16QAM	34.30	2.692	External	12.5	17.8	120	0.26480	0.5853
	64QAM	34.65	2.917	External	12.5	17.8	120	0.28693	0.5853
	QPSK	35.44	3.499	External	12.5	17.8	120	0.34418	0.5853
3G	WCDMA	34.03	2.535	External	12.5	17.8	120	0.24936	0.5853

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(e) This is below the FCC limit.