

R.F Exposure/Safety Calculation for QX CELL-PCS-LTE-AWS

The E.U.T. is rack or wall mounted. The typical distance between the E.U.T. and the general population is >75 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limit at 881.5 MHz is: $f / 1500 = 0.588 \frac{mW}{cm^2}$

FCC limit at 1960 MHz is: $1 \frac{mW}{cm^2}$

FCC limit at 747 MHz is: $f / 1500 = 0.498 \frac{mW}{cm^2}$

FCC limit at 2135 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 ,dBi

R- Distance from Transmitter

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

Band	Modulation	Pt (mW)	Antenna type	G _T (dBi)	R (cm)	S _{AV} (mW/cm ²)	Spec (mW/cm ²)
CELL	LTE QPSK	235.505	External	12.5	75	0.059	0.588
	LTE 16QAM	246.037	External	12.5	75	0.062	0.588
	LTE 64QAM	276.694	External	12.5	75	0.070	0.583
	GSM	255.270	External	12.5	75	0.064	0.587
	W-CDMA	306.196	External	12.5	75	0.077	0.587
PCS	LTE 64QAM	495.450	External	12.5	75	0.125	1.0
	LTE 16QAM	432.514	External	12.5	75	0.109	1.0
	LTE QPSK	453.942	External	12.5	75	0.114	1.0
	GSM	483.059	External	12.5	75	0.122	1.0
	W-CDMA	582.103	External	12.5	75	0.147	1.0
LTE	LTE 64QAM	997.700	External	12.5	75	0.251	0.489
	LTE 16QAM	831.764	External	12.5	75	0.209	0.502
	LTE QPSK	711.214	External	12.5	75	0.179	0.502
AWS	CDMA	941.890	External	12.5	75	0.237	1.0
	LTE 64QAM	1009.253	External	12.5	75	0.254	1.0
	LTE 16QAM	870.964	External	12.5	75	0.219	1.0
	LTE QPSK	741.310	External	12.5	75	0.187	1.0
	W-CDMA	899.498	External	12.5	75	0.226	1.0