

R.F Exposure/Safety Calculation for HX-5

The E.U.T. is rack or wall mounted. The typical distance between the E.U.T. and the general population is >115 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limit at 881.0 MHz is: $f / 1500 = 0.587 \frac{mW}{cm^2}$

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 1.1307(b)(1) 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, 12.5 dBi = 17.8 numeric

R- Distance from Transmitter 115cm

(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	64QAM	0.00489	External	12.5	17.8	115	5.24E-07	0.587
	GSM	0.00354	External	12.5	17.8	115	3.79E-07	0.587
	W-CDMA	0.00561	External	12.5	17.8	115	6.01E-07	0.587
PCS	64QAM	0.00447	External	12.5	17.8	115	4.79E-07	1
	GSM	0.00206	External	12.5	17.8	115	2.21E-07	1
	W-CDMA	0.00344	External	12.5	17.8	115	3.68E-07	1
LTE	QPSK	0.00232	External	12.5	17.8	115	2.48E-07	0.498
	16QAM	0.00228	External	12.5	17.8	115	2.44E-07	0.498
	64QAM	0.00216	External	12.5	17.8	115	2.31E-07	0.498
AWS	GSM	0.00239	External	12.5	17.8	115	2.56E-07	1
	64QAM	0.00294	External	12.5	17.8	115	3.15E-07	1
	W-CDMA	0.00369	External	12.5	17.8	115	3.95E-07	1
IDEN	64QAM	0.00208	External	12.5	17.8	115	2.23E-07	0.576
	GSM	0.00207	External	12.5	17.8	115	2.22E-07	0.576
	W-CDMA	0.00204	External	12.5	17.8	115	2.18E-07	0.576