

R.F Exposure/Safety Calculation for MobileAccessHX High Power DAS Remote Unit CELL PCS LTE AWS MIMO

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 747.0 MHz is: $f / 1500 = 0.498 \frac{mW}{cm^2}$

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 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	CDMA	5807.64	External	10	115	0.349	0.587
	GSM	4111.50	External	10	115	0.247	0.587
	W-CDMA	6151.77	External	10	115	0.370	0.587
PCS	CDMA	6745.28	External	10	115	0.406	1.0
	GSM	6208.69	External	10	115	0.374	1.0
	W-CDMA	5874.89	External	10	115	0.354	1.0

Band	Modulation	Pt (mW)	Antenna type	G _T (dBi)	R (cm)	S _{AV} (mW/cm ²)	Spec (mW/cm ²)
LTE	W-CDMA	7227.70*	External	10	115	0.435	0.498
	QPSK	4977.37*	External	10	115	0.299	0.498
	16QAM	7798.30*	External	10	115	0.469	0.498
	64QAM	5701.64*	External	10	115	0.343	0.498
AWS	CDMA	5902.01*	External	10	115	0.355	1.0
	W-CDMA	6266.14*	External	10	115	0.377	1.0

* RF Output via 2 MIMO antenna ports.