

R.F Exposure/Safety Calculation for VE AWS MIMO DAS

The E.U.T. is a WiMAX distributed antenna system. The “worst case” distance between the E.U.T. and the general population is 15 cm.

Calculation of Maximum Permissible Exposure (MPE)
Based on Section 1.1307(b)(1) Requirements

(a) FCC limits 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 Power

G_T - Antenna Gain

R- Distance from Transmitter

(c) Peak power density:

Modulation	Pt (mW)	Antenna type	G _T (dBi)	R (cm)	S _{AV} (mW/cm ²)	S _{AV} From 2 MIMO Ports Simultaneously(mW/cm ²)	Spec (mW/cm ²)
CDMA	76.7	Integral	0	15	0.027	0.054	1.0
WCDMA	72.6	Integral	0	15	0.026	0.052	1.0
QPSK	71.8	Integral	0	15	0.025	0.050	1.0
16QAM	64.3	Integral	0	15	0.023	0.046	1.0
64QAM	60.7	Integral	0	15	0.021	0.042	1.0
CDMA	76.7	External	10	15	0.271	0.542	1.0
WCDMA	72.6	External	10	15	0.257	0.514	1.0
QPSK	71.8	External	10	15	0.254	0.508	1.0
16QAM	64.3	External	10	15	0.227	0.454	1.0
64QAM	60.7	External	10	15	0.215	0.430	1.0