# R.F Exposure/Safety Calculation for MRU - AWS

The E.U.T. is rack or wall mounted. The typical distance between the E.U.T. and the general population is >100cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1310 Requirements

(a)FCC limit at 2111.2 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, 12.5dBi= 17.8 numeric

R- Distance from Transmitter 100 cm

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

| Band | Modulation | Pt (dBm) | Pt (mW) | Antenna type | $G_T$ (dBi) | $G_T$ numeric | R (cm) | $S_{AV}$ ($mW/cm^2$) | Spec ($mW/cm^2$) |
|---|---|---|---|---|---|---|---|---|---|
| AWS | GSM | 37.6 | 5754 | External | 12.5 | 17.8 | 100 | 0.815042 | 1.0 |
| | LTE 64QAM | 35.0 | 3162 | External | 12.5 | 17.8 | 100 | 0.447891 | 1.0 |
| | WCDMA | 37.0 | 5012 | External | 12.5 | 17.8 | 100 | 0.709939 | 1.0 |

(d) This is below the FCC limit.