

Computation of Distance to Center of Radiation of Antenna vs Power into Antenna, Antenna Gain, and Allowed Power Density

BEAMREACH NETWORKS						
MAXIMUM PERMISSIBLE EXPOSURE CALCULATIONS						
Calculation of mpe distance per product specifications						
Unit	Average Power into Antenna during Tx Interval (dBm)	Tx Duty Cycle (dB)	Average Power into Antenna, P (dBm)	Antenna Gain, G (dBi)	Power Density, S (mW/cm ²)	Distance to Center of Radiation of Antenna, R (cm)
ODU CPE	30	-3.89	26.11	18	5	20.24
IDU CPE	30	-3.89	26.11	11	1	20.22
Base (5W)	37	-2.92	34.08	17	5	45.16
Base (10W)	40	-2.92	37.08	17	5	63.78
S = $P \cdot G / (4 \cdot \pi \cdot R^2)$, far field calculation						
R = $\sqrt{P \cdot G / (4 \cdot \pi \cdot S)}$						
Note:						
1. FCC limit for general population/uncontrolled exposure is 1mW/cm ² .						
2. FCC limit for occupation/controlled exposure is 5mW/cm ² .						
Calculation of mpe distance per product average power measurements						
Unit	Average Power into Antenna during Tx Interval (dBm)	Tx Duty Cycle (dB)	Average Power into Antenna, P (dBm)	Antenna Gain, G (dBi)	Power Density, S (mW/cm ²)	Distance to Center of Radiation of Antenna, R (cm)
ODU CPE	28.5	-3.89	24.61	18	5	17.03
IDU CPE	27	-3.89	23.11	11	1	14.31