# RF Hazard Distance Calculation

The Power density is given by:

$$(1)\ S = \frac{P \times G}{4 \times \pi \times R^2}$$

Therefore:

$$(2)\ R = \sqrt{\frac{P \times G}{4 \times \pi}}$$

Where:

$P$ = Power input to the antenna [mW].
$G$ = Antenna Gain in the direction of interest [In numeric format].
$R$ = Distance to the center of radiation antenna [cm].

$$(3)\ P_{dBm} = 10 \times \log P_{mW}$$

Therefore:

$$(4)\ P_{mW} = 10^{\frac{P_{dBm}}{10}}$$

The hazard distances versus antenna gain are listed in the following table:

| Antenna gain | | Max TX Power | | EIRP | | Safe distance | |
|---|---|---|---|---|---|---|---|
| dBi | Numeric | dBm | mW | dBm | mW | cm | |
| 27 | 501.1872 | 30.03 | 1006.932 | 57.03 | 504661.3 | 200.3987776 | |

Max TX power 30.03 obtained at mid frequency 4963MHz at 20MHz channel BW.
General public will not be exposed to dangerous RF level, when the fixed radio device will be used at distance above 200.3987776 cm.
When using the system for applications, all outdoor units must be installed with a
separation distance of at least 2.5 meters from all persons during normal operation.

Warning in the user manual will be provided.