

WipAir 8000 4.9GHz

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	29.104	813.5795	56.104	407755.7	180.1337408	

Max TX power 29.104 obtained at low frequency 4943MHz 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 180.1337 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