

The Device is a carrier grade gateway designed for IoT applications. The device is intended to be installed in controlled area like tower or roof top building with restricted access to general public. The installation and maintenance must be performed by professional trained RF technician.

The device has 1 transmit antenna port, which must be used with the RF amplifier (TTU) supplied and antenna respecting the requirement specified in the technical documentation.

**Per OET Bulletin 65 Edition 97-01, Appendix A Limits for Maximum Permissible Exposure (MPE)**

Frequency Range (MHz)	Controlled Exposure (table 1 A) Power Density 'S' (mW/cm <sup>2</sup> )	Uncontrolled Exposure (table 1 B) Power Density 'S' (mW/cm <sup>2</sup> )
300-1500	f/300	f/1500

S = 0.62 mW/cm<sup>2</sup>, for uncontrolled exposure (rounded up to the 2<sup>nd</sup> decimal)

S = 3.1 mW/cm<sup>2</sup>, for controlled exposure (rounded up to the 2<sup>nd</sup> decimal)

The table below shows the EIRP value for all transmission mode. This mode was determined by measurement to be the worst case scenario for EIRP.

Modulation	Freq. (MHz)	Pout (dBm)	Duty Cycle (%)	Ant (dBi)	EIRP	Pwr (mW)
LoRa DTS	903.65	26.79	100	8	34.79	3013
	909.95	27.04	100	8	35.04	3192
	915.725	27.15	100	8	35.15	3273
	927.5	24.86	100	8	32.86	1932
LoRa FHSS 125kHz	912.31	27.45	100	8	35.45	3508
	919.511	27.317	100	8	35.317	3402
	927.0125	26.071	100	8	34.071	2553
FSK	902.5	26.919	100	8	34.919	3104
	915	27.337	100	8	35.377	3449
	927	26.259	100	8	34.259	2666

For worst case scenario, the highest measured EIRP value was rounded up to 3508 mW.

To determine the minimum safe distance, the equation (4) from the OET bulletin 65 is used,

$$S = \text{EIRP} / (4 \pi R^2)$$

Where: S, power density in 'mW/cm<sup>2</sup>'

EIRP, Effective Isotropic Radiated Power in 'mW'

R, distance to the center of the radiation of the antenna in 'cm'

and then re-arrange to determine the minimum safe distance.

$$R = \sqrt{[\text{EIRP} / (4 \pi S)]}$$

**R = 21.4 cm, for uncontrolled exposure (rounded up to the first decimal)**

R = 9.6 cm, for controlled exposure (rounded up to the first decimal)

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