

MPE Calculation / RF Exposure Info

FCC ID: XS5-ION-M7P8PS

The EUT is a multi-band, multi-operator remote unit with various extension units. It is used in conjunction with a master unit in the ION optical distribution system (Uplink 778 – 806 MHz; Downlink 763 – 775 MHz and Uplink 806 – 824 MHz; Downlink 851 – 869 MHz).

This specific device will be professionally installed.

The antenna used with this device must be fixed-mounted on indoor or outdoor permanent structures with a sufficient distance to any human body to comply with the RF Exposure limit.

Hereby the antenna gain and cable attenuation will be defined site specific at the time of licensing with the appropriate FCC Bureau(s).

As specified in Table 1B of 47 CFR 1.1310 – Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Power density (mW/cm ²)
300 – 1,500	f/1500
1,500 – 100,000	1.0

the maximum permissible exposure limit is (frequency 869 MHz):

0.579 mW/cm² (general / uncontrolled exposures)

The min separation distance between the antenna and any human body is to be calculated (solving for R in cm) with the final actual antenna gain/cable attenuation where the limit of 0.579 mW/cm² is kept using the general equation:

$$S = P \cdot G / 4\pi R^2$$

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

Sample Calculation:

Maximum output power at antenna input terminal: **44.05 dBm**

Maximum antenna gain (including cable loss) according to maximum output power: **15.95 dBd**

The minimum separation distance: **3.71 Meter** (370.73 cm)