



LIGHTNING PROTECTION REQUIREMENTS FOR FSO COMMUNICATION EQUIPMENTS INSTALLED OPEN-AIR.

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SUBJECT OF THIS DOCUMENT:

Due to the double isolation techniques applied in the Geodesy FSO devices, connecting it into a buildings lightning protection, might raise the possibility of the lightning caused damages. In this document we will try to summarize the best installation practices how to avoid damages cause by lightning strike.

OVERVIEW

The electromagnetic pulse released by a lightning strike or the strike itself is the highest risk, for electrical equipments placed outside of buildings.

The energy of the lightning strikes has to be grounded. This means that the power of the strike should be collected and drained to the ground through a network of grounded cables. These cables have to be insulated from the devices it protects.

According to the modern philosophy of the insulated of the insulated lightning protection method to protect the equipments from the effects of lightning have to be placed inside of a so called “protected zone”. In this zone the equipment is not exposed to the lightning.

If the system is under the “protection zone” of the insulated lightning protection solution, then it is not necessary, to be grounded. The grounding in this case will decrease the protection level as it might open a new path for the energy of the lightning to drain. This might make the behaviour of the lightning unpredictable.

POWER SUPPLY CONSIDERATIONS

The power supplies are protected on the input and also on the output by fuses, so it won't pass the large energy of the lightning.

Third party power supplies have to be confirmed by the manufacturer, that it is suitable for powering outdoor equipments.

CABLES

Data and power cables are also a consideration of the lightning protection. We will try to summarize it.

OPTICAL CABLES

Optical cables and patch cords are not conducting electricity, so in the case of fiber cables it is not a subject of protection.

COPPER CABLES

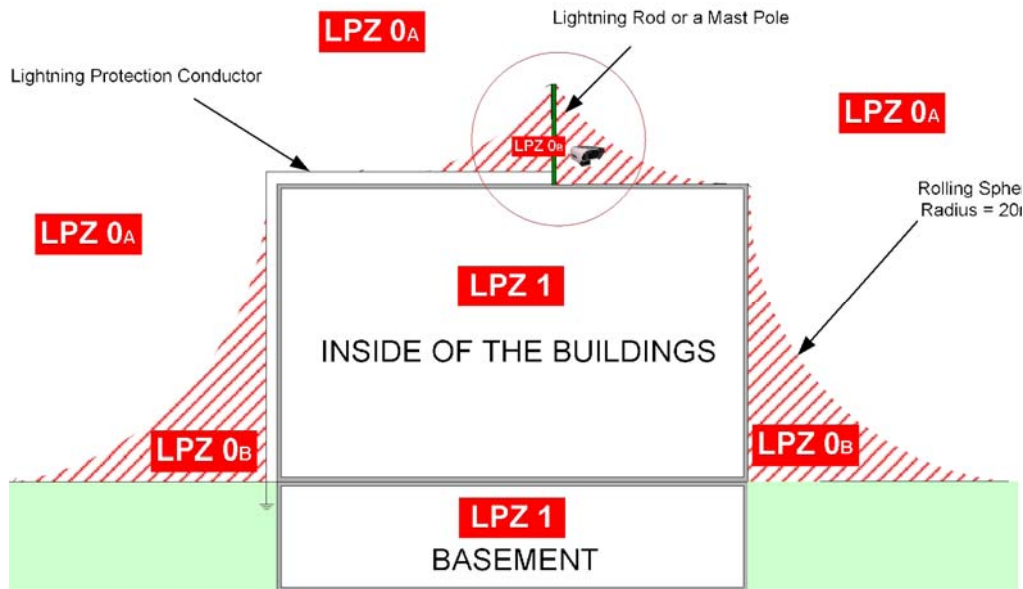
All copper feeds should be terminated into an approved Ground Fault Interrupters, with surge protection per local electrical codes or installation practices.

MOUNT PROTECTION

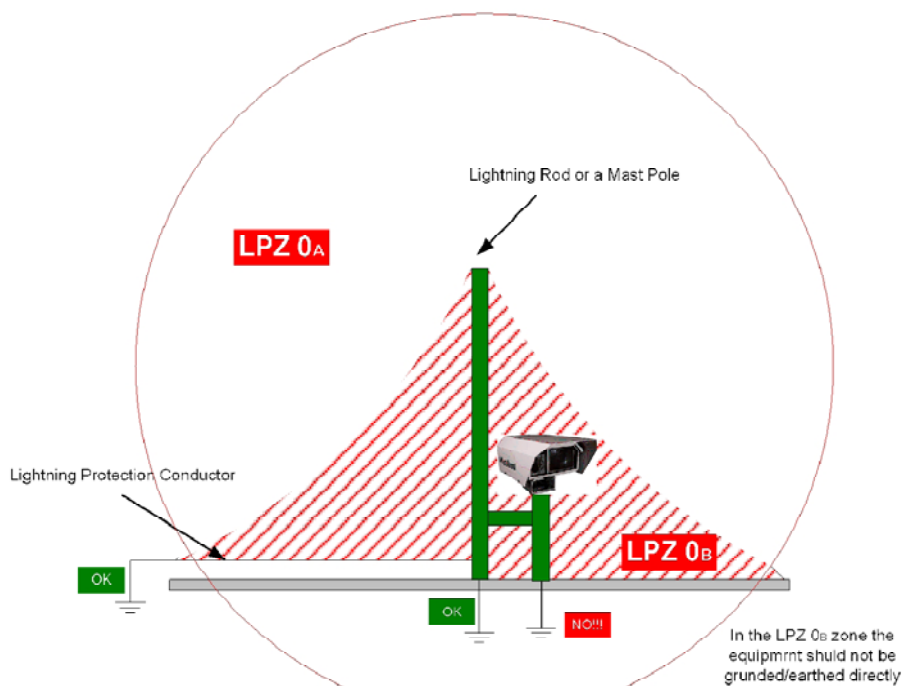
The best protection is if there is a protection tower installed near the FSO system, but isolated from the mounting of the FSO system

CONCEPT OF THE PROTECTED ZONES

Below you can see the concept of the Lightning Protected Zones and also the grounding. drawings of the FSO units.



In LPZ0b the reduced lightning strike hazardous zone.



DISCLAIMER

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Always refer to the local regulations and rules of outdoor installation. If you are in doubt ask local experts about how to protect the FSO equipments from Lightning strikes.