

# Things to note when using a communication base station inverter for lightning protection

Where can I find information about lightning protection?

For lightning protection best resources are Polyphasers book the ARRL Handbook along with the book "Grounding and Bonding for the Radio Amateur". The ARRL Handbook contains good electrical safety information for the amateur radio operator. Links on the next few pages to references and info. Links are also available at:

How should a lightning protection System (RBS) be formed?

The earthing network of an RBS should be formed by a ring loop surrounding the tower, equipment room and fence, at a minimum. The mean radius  $r_e$  of this ring loop should be not less than 11, as indicated in Figure 1 and this value depends on the lightning protection system (LPS) class and on the soil resistivity.

How to protect the navigation light system in the equipment room?

Figure 12 shows protection of the navigation light system in the equipment room. If the NL has internal control circuits or it is based on LED technology, then an SPD is required on the top of the tower to protect the lamp. This SPD can be integrated into the lamp box.

Is a telecommunication tower impacted by lightning?

If the antenna is installed on the top of telecommunication tower, e.g., antenna positions 1 of Figure 29, it is considered to be impacted by or exposed to direct lightning strikes. Refer to [IEC 62305-3] for detail information about the protection angles and volume protected by an air termination system.

Are rooftop antennas protected from lightning strikes?

If the antenna is installed on the rooftop, e.g., antenna positions 2 of Figure 29, depending on the relative height of building and the installation of the antenna system, it may be considered to be inherently protected from direct lightning strikes or be impacted by or exposed to direct lightning strikes.

What is a radio base station (RBS) earthing network?

The most important objective of the radio base station (RBS) earthing network is to minimize the differences in potential between the conductive parts within the RBS site (equipotential bonding), which is beneficial for the safety, lightning protection and electromagnetic compatibility (EMC) performance of the equipment.

The mobile communication system includes wireless devices: a computer room, a station, an iron tower, an antenna feeder, etc., and the antenna feeder system is set up high, ...

Inverter Best Installation Practices to Minimize Lightning Vulnerability Background: A direct lightning strike is nearly impossible for electronic equipment to survive. Understanding the ...

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The purpose of this Recommendation is to give detailed guidance on protection procedures, so that an engineer who is not a lightning protection expert can accomplish the design of the ...

The tower-mounted amplifier is exposed to the outdoor environment and needs protection from lightning strikes and ESD. This circuit should have a series fuse to protect against current ...

Hi guys, Note: Below I'm speaking of CB but the question applies to ham installs. I'm not looking for comments about the CB itself but about the base setup and its protection against lightning. ...

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This application note follows the recommendations for lightning and surge protection set out in AS1768. There are two basic options to be considered before lightning and surge protection is ...

- Working grounding: Connects the inverter PE terminal to the distribution box's grounding busbar, detecting grounding faults. - Protective grounding: Provides redundant ...

The communication base station lightning arrestor remains the frontline defense against nature's voltage spikes, yet industry reports show 23% of telecom operators still use decade-old ...

This solution simplifies the complex base station ground network engineering by using the equipment method, and completely isolates the impact between lightning protection grounding, ...



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