Siretta
Enabling Industrial IoT

Some tips on getting the best possible signal out of your application

Directional antennas will provide the installer with the benefit of a highly concentrated signal if lined up correctly. This is why, with a cellular network of base stations, installers want to get the best “local” signal strength either by lining up with the strongest signal available or with the best one from their designated SIM provider. So what is involved when setting up?

• Directional antennas effectively cover an angular sector of space in which the desired cellular signals will be received. This sector can cover anywhere up to 50 to 60 degrees depending on the antenna’s gain. This provides a bit of scope when trying to set up, meaning that accuracy does not necessarily come down to “surgical” levels, so long as you are in the receiving sector.

• A 360 degree sweep with a suitable cellular signal analyser and directional antenna (Yagi style) should be undertaken to understand where the best signals are or where they are for your SIM provider. The antenna can be linked to the SNYPER in LiveSCAN mode at the time of installation, allowing the received signal strength to be measured in real time and allowing the antenna to be moved around to locate the ideal position for optimal reception.

• In this time of vast cellular activity, it is easy to think that you can just put an antenna anywhere once the direction is understood. However, there are still basic pitfalls to avoid and some good practice to employ. For instance, avoiding obvious obstacles in very close proximity to the antenna e.g. buildings, walls which will compromise or block the signals you want to receive.

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• Mounting on rooftops of buildings is therefore seen as the obvious choice, but optimum signal strength can be gained by ensuring it is at the edge of the building pointing closest to the base station. E.g. if the base-station you wish to align with is an easterly direction, then the antenna should be mounted on the East side of the building at a suitable or highest height. The antenna should be mounted so that it is vertical.

• Be careful to avoid the situation where the nearest base station is taken as being the base station to align with. It may be that the nearest base station has antennas that are pointing away from your location, rather than towards it, or that there are numerous obstacles in the way. Therefore, it may be that the strongest cellular signal you require is coming from a base station further away.

Siretta has a selection of excellent directional antennas available which cover a range of frequencies with different levels of gain and directionality. Our Oscar20A is a great choice for when point-to-point links are the only viable option to connect your equipment with a single cell site and is already proven in many LPWAN, cellular and Wi-Fi applications around the world. Check out the datasheet here to learn more about this outstanding antenna and how it can enhance your application.

Siretta Ltd
Basingstoke Road
Spencers Wood
Reading
Berkshire RG7 1PW

sales
email
web

+44(0)118 976 9000
sales@siretta.com
www.siretta.com