



FAQs

1. What routers needs 4x4 mimo to get full speed?
2. I have old 4G antenna with 1 cable, can I use that for latest 5G routers?
3. It was mentioned that a good antenna has a big impact on the performance of the connection? What makes for a good antenna?
 - i. **Frequency:** Fundamentally, antennas are not interested in technology, but in frequencies. They are designed to work in a range of frequencies, and most of our antennas cover 4 and 5G frequencies. So we need to ensure that the antenna being selected covers the desired frequencies. For remote and rural applications, 99% of the times we must look at the performance of the antenna at frequencies below 1GHz. But of course, then you have to guarantee that between 1 and 3.8GHz it is also good.
 - ii. **Gain:** Not just the number that appears on the top of the datasheet, but the antenna gain across all frequencies of operation of the antenna. Theoretically, the higher it is, the further your connection would work. However, it is necessary to balance the gain and the radiation pattern.
 - iii. **Radiation pattern** is what tells us where the gain is pointing towards. So if we're considering an omni-directional antenna, then the antenna has to be truly omni-directional, so that it picks up the signal, always with the same performance 360° around the antenna – since we don't know in advance what the position of the provider's mast is relative to the position ship's. If it is directional, the higher gains of the antennas should come from it's center.
 - iv. **VSWR:** Antennas will generally accept only a certain percentage of the incoming power, the rest will be rejected and returned, due to the difference between the impedance of the antenna and the power cable/device. Look for antennas that have a VSWR < 2.5:1.
 - v. **Mechanical design and quality of materials:** Of course, everything needs to be designed and thought for the environment it's going to be installed at. The types of plastics, the types of metallic elements, being resistant to vibrations, salinity, UV protection, IP rating.
 - vi. These would be the main aspects, I would say.



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3. So how do we know what antenna to choose for each application scenario?

- Answer: Show <https://choose5gantennas.com/> tool.

4. If we have a long cable run, is it still worth it using an external antenna?

- Answer: Absolutely. The difference in signal from outside a building to inside of it, is around 15dB (depends on the building of course). Even if we consider that the cable run will add a loss of up to 5dB, and that our antenna only has a gain of 3dBi for the frequency which is being used, this still means that we improve our signal by 13dB (15-5+3)

5. Do your routers have e-sim?

Yes. You can use all physical e-sims. Mounted e-sims can be added in the manufacturing process to RUT2 and RUT9 series

6. To Teltonika do you plan to produce Narrow Band-IOT modems?

We already have NB-IoT 2 devices that support it:

TRM250

TRB255

7. How long distance can the antennas reach in rural area with hash weather condition?

6km in this use case: <https://poynting.tech/articles/case-studies/fixed-wireless-access-solution-from-poynting-resolves-marginal-rural-telecommunication/>

7km in this use case: <https://poynting.tech/articles/newsletter-articles/inteto-connect-solves-cellphone-reception-problems-at-remote-game-farm/>

Other use cases:

5G in Ireland: <https://poynting.tech/articles/newsletter-articles/superfast-internet-in-rural-ireland-using-poynting-antennas/>

Remote South Africa: <https://poynting.tech/articles/newsletter-articles/leopard-conservation/>

Carrier (Telenor Norway): <https://poynting.tech/articles/newsletter-articles/antennas-for-telenors-mobile-broadband-offering-to-homes/>