



Poynting Antennas (Pty) Ltd

Commercial Division

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Signal Strength & Installing your Directional Antenna from Poynting

Speedtest.net

If you are on the edge of the 3G or 4G coverage area there is a very good chance you will connect to 3G with an external high gain antenna.

There is even a better chance, if you get an intermittent signal, in other words you get flickering of 3G or 4G at certain times of the day or night. This means that that little bit of signal you get, will be boosted, and you will have a constant connection to 3G or 4G.

Please note that if you are completely out of the 3G or 4G coverage area and does not get any indication that you can connect to 3G or 4G inside or outside of the building, the antenna will probably not help. No antenna can change GPRS or EDGE to 3G or HSDPA.

An antenna will however boost the signal that it is receiving quite significantly. If you get GPRS, you will get faster constant GPRS, if you get 3G or 4G you will get faster and constant.

If you have signal degradation problems (due to trees/buildings/landscape) these antennas are ideal.

How to determine if you are in an EDGE, 3G or 4G area?

Have a look on the Vodacom coverage map to see if you get the (GPRS) frequency or better yet (EDGE) where you live. 3G/HSDPA is ideal, but GPRS/EDGE still allows enough speed to do general web surfing and e.g. banking. Please have a look on the following web links to see what service you get:

Vodacom clients <http://www.vodamap.net/3g/>
MTN clients [Coverage Map](#)

GPRS	64kbps
EDGE	200kbps
3G	380kbps
HSDPA	1800kbps

You can also go to the following web link to give you an accurate Kbps uploading and downloading average: Go to www.speedtest.net click on the server (JHB or CT) and it will give you an indication of the speed you are experiencing in Kbps or Mbps. (GPRS is 64 Kbps (0.064 Mbps), EDGE is 200 Kbps – (0.2 Mbps), 3G is 380 Kbps – (0.380 Mbps) and HSDPA is from 1800 Kbps - 1.8 Mbps.)



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It is a good idea to do this a couple of times at different times during the day and evening to get a good average.

If you are 'sometimes' connecting to 3G (as example), there is a very good chance that with an antenna you will always connect to 3G.

Nerve Tool

It is sometimes very difficult to see any difference in the signal strength with the indicator on the standard HUAWEI software. You can use this software to align the directional antenna to maximize the signal strength.

Close your standard HUAWEI software. (Thus as a connection tool you'd use this (nerve) software tool to connect to the Internet, and not the modem's standard connection tool.)

Download the current version of Nerve (see link below) and read the "readme.txt" file. Make sure the tool is measuring 3G only or 4G/LTE only. Use this then to determine where the best signal is coming from.

Green is good. <http://www.nerve.org.za/mdma/>

You should do about 5 speed tests in order to get a good average before you install the antenna. The speed depends on the amount of traffic in the Vodacom (MTN) Etc, network, which differs at different times in the day/night.

Now install the antenna using the "Advice for installing below".

Do the speed test again.

The signal improves as it moves to Zero (0) dBm. The list below gives an indication of what signal is acceptable:

-100 to -95 dBm is adequate for communication ONLY in *rural or remote areas* where there are not many users on the towers – people can even connect with -100dBm, but because noise ratio is low.

-90dBm is good comms (in cities and built up areas where there are many users on the towers)

-85 dBm to -90 dBm is very good

-85 dBm and better is excellent

You will not get better than -51 dBm .

Now you can fine tune the antenna even further by turning the antenna 1 or 2 degrees at a time and by moving the antenna slightly vertically (a degree up or down) or horizontally to find an even better dBm value. This process does take sometime but is very well worth the effort.



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Advice for installing:

- Point the antenna in the direction of the cellular tower.
 - The cellular tower should be from the operator you are using (e.g. Vodacom to Vodacom)
 - The cellular tower should also be 3G enabled.
- It takes up to a minute for the tower and the antenna to communicate so keep the antenna in that direction for +- a minute to see if the reception improves.
- If you are not sure of where the tower is, move the antenna in increments of a few degrees at a time to see where the signal improves.

If you have an option of more than one tower, select the tower with the least obstructions between you and the tower even if it is much further. The antenna can communicate with a tower up to 35 km's away.

- It is better to communicate to a tower 35 km's away with clear *line-of-sight than a tower that is 2 km's away but behind a hill.
- The antenna should be mounted as high as the cable allows.
- The following items that obstructs your line-of-sight can influence the signal:
 - Landscape (in other words a hill or mountain)
 - Any metal obstacle like a corrugated iron roof, buildings with metal reinforcing etc.
 - Trees (especially if it is raining and the leaves are wet)

*Line-of-sight - 'Line-of-sight' is an imaginary line that stretches between the antenna and the tower, with no obstacle in between.