Comparative Case Study (LTE, 4G, 5G 4x4 Antenna)

Background

Melodie is a residential suburb in Hartbeespoort, South Africa that has a high concentration of complexes and interesting enough has very good 5G network coverage.

The area is typical of Semi-Urban Areas in South Africa with relatively high density, single storey Housing. Whilst this particular 5G Tower was relatively close by, the Area is serviced by relatively sparsely populated Mobile Network Operator Towers which lends itself to deploying Directional Antennas to get the most of the available LTE, 4G, 5G Signal.

Challenge

The client lives in a residential complex which has no Fibre installed and works from home. Moreover, he works for a Router vendor manufacturing 5G routers which he regularly tests in his Lab. The client has a Cradlepoint W2000-5GB 5G router which he is testing with 4x4 5G antennas from different vendors to see which works best/ offers better results.

Poynting offered the XPOL-0024 4x4 5G antenna for him to test. The same test was done with a competitor 5G 4x4 antenna and the results recorded.

Setup

The XPOL-24 antenna was mounted outdoors and pointed to a base station not so far from the client's complex. (Photographs 1 & 2 below)

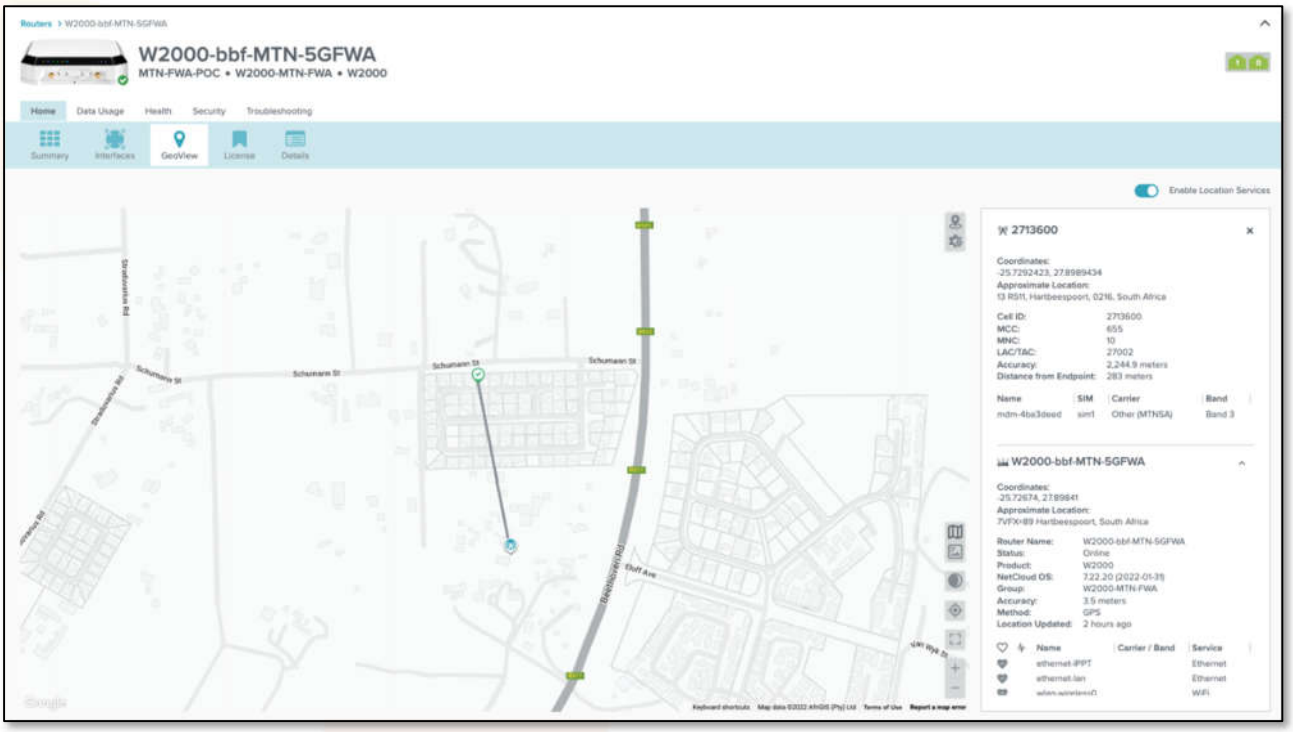
Photo 1

Photo 2

Head Office
Johannesburg
A: Unit 4, N1 Industrial Park, Landmarks Ave, Samrand, 0157, South Africa
P: PO Box 76579, Wendywood, 2144, South Africa
T: +27 12 657 0050 | **E:** info@poynting.tech

Poynting Antennas (Pty) Ltd
Registration Number: 2000/026835/07
VAT Number: 4900192768

Below is a map of where the 5G router device was installed and details of the base station the router was connected to.



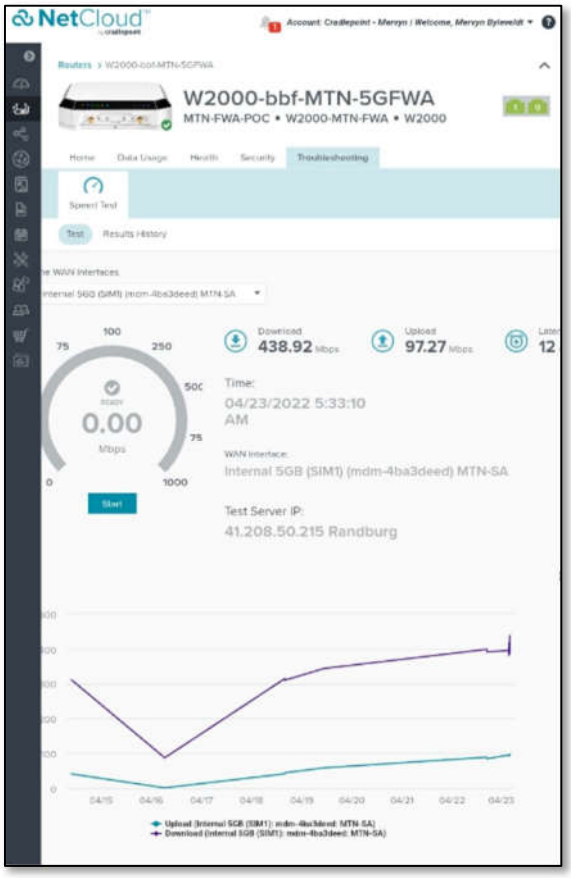
Results

A comparative performance analysis between the competitor antenna and Poynting's XPOL-0024 antenna was conducted, and the results recorded.

Note: The competitor antenna was installed in the same location until 22-April-2022 and Poynting's XPol-0024 was installed on 23-April-2022

Speed tests:

The screenshot on the right depicts the Router speed test with XPOL-0024 antenna.



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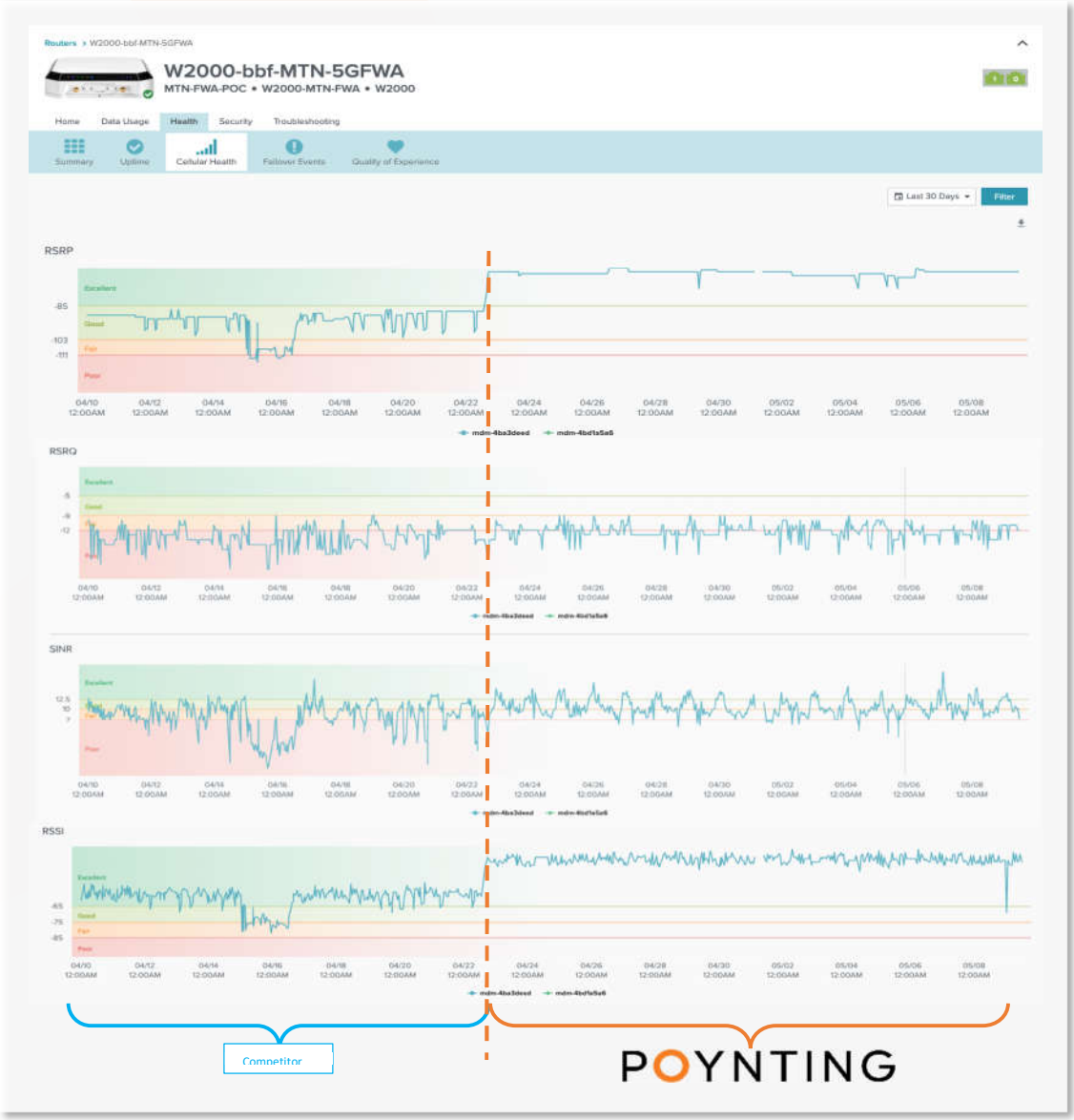
Speed tests summary table

LTE Signal details:

(The orange dotted line depict the point in time when the Poynting XPOL-24 was installed)



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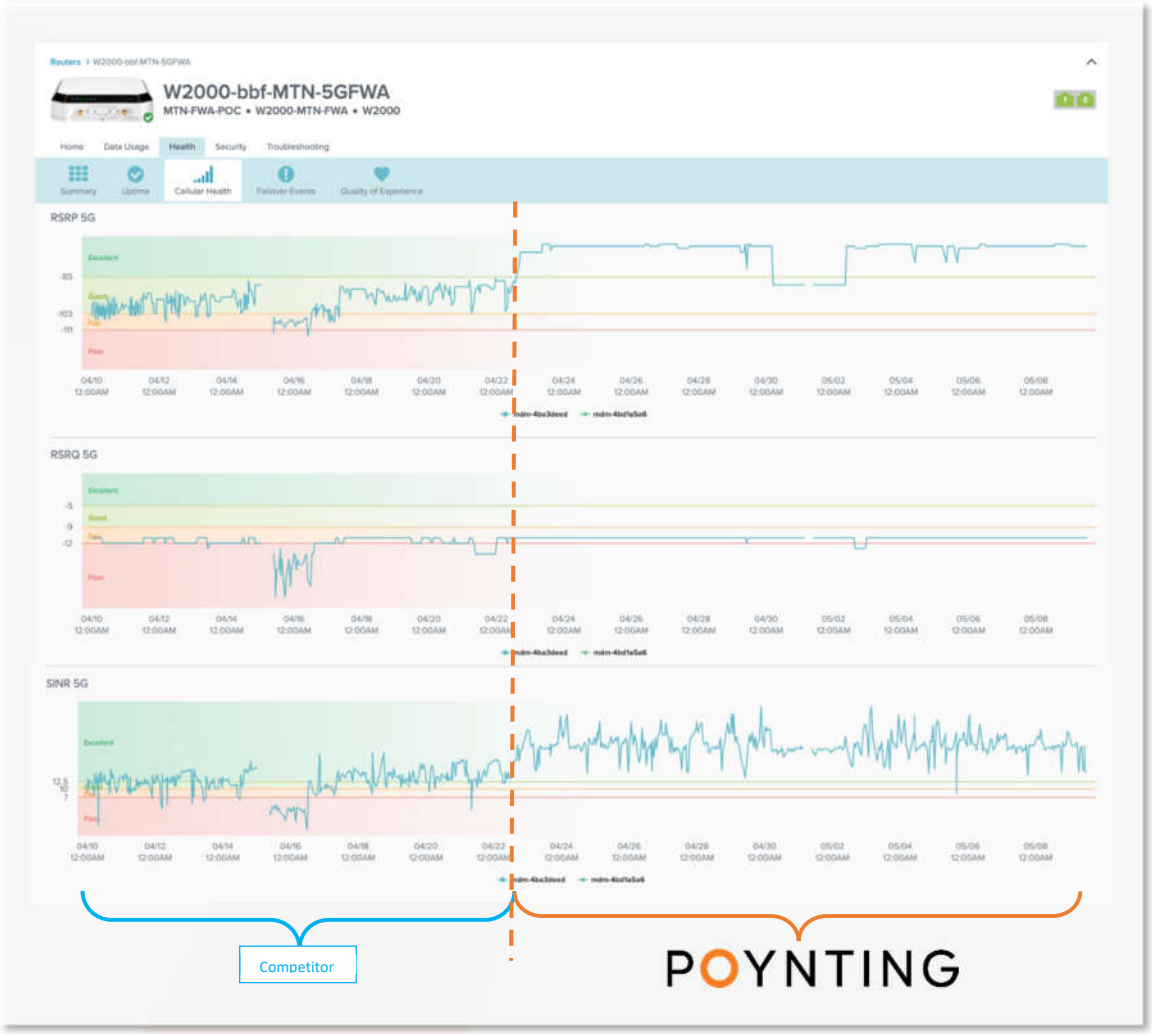
5G Signal details:



The Speed Test Summary Table above shows an increase in

Download: 438,92 - 398,82 / 398,82 Mbps = **10,05%**
Upload: 97,27 - 88,88 / 88,88 Mbps = **9,44%**

From the graphs above it can be clearly seen how all **Signal Parameters** and in particular both the **Received-Signal-Strength-Indication** (RSSI) measured for LTE as well as **Reference-Signal-Receive-Power** (RSRP) for both LTE as well as 5G improved significantly.

Of particular importance is **Signal-to-Interference-and-Noise Ratio** (SINR) which also improved in both cases leading to the **significant improvement** seen in both Download- and Upload Speeds after installing the Poynting XPOL-24 Antenna.

Conclusion

After installing the Poynting XPOL-24 Antenna there was a significant increase in both Download- and Upload Speed as well as Signal Parameters in both LTE and 5G reception over that of the Competitor Antenna.