CASE STUDY | BATTLING NOISE AND TOWER RESTRICTIONS WITH RF ELEMENTS HORNS

PRIMO'S EXPERIENCE WITH ANTENNAS

PrimoWireless has been operating in the WISP market of New Zealand for over 11 years now, and during these 11 years they have learned a great deal about wireless equipment, who makes the best gear, which ones last longer than others, who are the trend setters, and that not all antennas are made equal.

> "Not all antennas are made equal."
>
> -Matthew Harrison, PrimoWireless

PrimoWireless has primarily used Ubiquiti™ antennas for deployment with the range of Ubiquiti™ radios, but they soon found these needed additional shielding, adding extra cost, taking extra time, taking up more room, and causing issues when replacing radios.

The company continued to run into issues on their sites with having bad performing sector antennas of between 90-120 degrees, and there was only so many of these they could deploy due to the noise they all caused between each other plus the large size of them. Now enter the game changer – RF elements® horn sectors with TwistPort™.

WISP PROFILE

Name: PrimoWireless
Location: Taranaki, New Zealanad
WISP size: 2000-3000 customers
Website: primowireless.co.nz

MEETING THE HORNS

PrimoWireless was introduced to the horns on a recent scouting trip for new products. They wondered; could they do what they say they will do? Will they still work with such a lower dBi gain? Will they fix their noise issues on their towers? And ultimately, will they provide the best end user expensive to the customers?

> "I was surprised, the answer to everything was yes, and it was so simple, they just f**king worked."
>
> -Matthew Harrison, PrimoWireless

Matthew continues: "There were no tools needed, it came preassembled right out of the box, I didn't have to add shielding, use silicone, attach coax, put on brackets, none of that, you just buy the antenna you want, add the TwistPort™ for the radio you want, and it all just twists together within a minute."

HORNS TRULY ARE A GAME CHANGER

"Here is the good stuff, by having the entire horn CNC-machined no noise from the radio leaks out the sides or back, therefore co-location of many horns is entirely possible and can easily be

done, with the amazing TwistPort™ adaptor you can put on a UBNT™ Rocket M5 radio that comes with its own shielding for the radio, then later you can simply swap it and upgrade it for a UBNT™ AC Prism TwistPort™, MikroTik™ TwistPort™, of even Cambium™ TwistPort™," Matthew says.

"One antenna, with so many easy ways to attach all the different radios to them is an amazing and time saving idea, again you can see why this is a game changer – imagine having a radio die, you simply untwist and swap with a new one, no coax to mess around with, less work means less downtime, which makes for happy customers."

THE TWISTPORT OF OUR CHOICE

Matthew Harrison: "Originally I liked the Rocket M5 TwistPorts™, but my chosen or preferred TwistPort™ is now the new AC Prism with GPS sync, with the noise so drastically reduced by the superior antenna and the hopefully soon ability to GPS sync access points, the RF elements® horn antennas and its co-location abilities could make the possibilities for current and future sites endless."

PrimoWireless has been able to go to their sites that had overloaded sectors with no room for an upgrade path due to noise levels or size of antennas needed, deploy 2-3 horns and balance out the old sectors, again improving the end use experience. The company believes there is still a need for traditional sectors especially with long distance customers, but they have seen excellent results on horns up to 25km and plan to use horns more often for closer customers and traditional sectors for beyond 25km.

Actions speak louder than words, and a picture is worth more than 1000 words. Here are 6 clients on traditional sector, note the noise floor, and Tx/Rx data rates.

Device Name	Tx Signal [dBm]	Rx Signal [dBm]	Noise [dBm]	Latency [ms]	Tx/Rx [Mbps]	CCQ [%]
#1	-54	-54	-93	1	130/130	100
#2	-61	-68	-93	1	65/65	99
#3	-66	-64	-93	1	117/130	99
#4	-65	-61	-93	1	130/52	98
#5	-67	-67	-93	2	104/117	97
#6	-64	-69	-93	1	130/117	97

Here are the same 6 clients running off an RF elements® 30 degree horn sector, note the noise floor, and Tx/Rx data rates.

Device Name	Tx Signal [dBm]	Rx Signal [dBm]	Noise [dBm]	Latency [ms]	Tx/Rx [Mbps]	CCQ [%]
#1	-58	-57	-105	1	144.4/144.4	100
#2	-64	-66	-105	1	72.2/65	99
#3	-64	-64	-105	1	144.4/144.4	99
#4	-62	-64	-105	1	144.4/144.4	100
#5	-61	-63	-105	1	144.4/144.4	99
#6	-57	-59	-105	1	144.4/144.4	99

"This is obviously not a large scale example, but it was the same group of clients, pointing at sectors in the same direction, running the same rocket M5s," Matthew concludes.

> "Without doubt these horn sectors will help take our business to the next level."
> -Matthew Harrison, PrimoWireless

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