imagine

Closing the Digital Divide with High-performance Broadband

Imagine Communications is providing broadband in the most remote areas of rural Ireland. Because customers are spread out, the company needed to optimize its fixed-wireless access (FWA) network investment. Imagine implemented a soft split feature, but performance was less than targeted due to side lobe interference issues. To resolve these issues, Imagine partnered with Alpha Wireless, a 15-year veteran in the 3.5 GHz space.

ALPHA WIRELESS

The customer

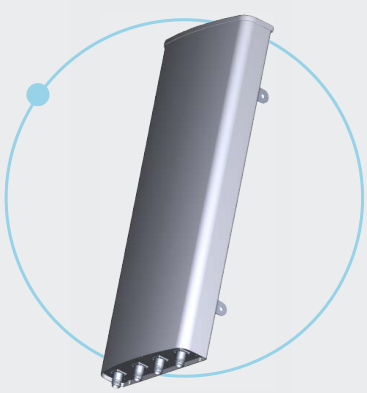
Imagine Communications is an Irish operator that provides high-performance broadband service for rural Irish homes and businesses, prioritizing those that have little or no broadband. The company covers 1.1 million homes and businesses across 31,000 townlands. Imagine aims to extend fast, reliable broadband coverage up to 150 MBps to everyone, using the very latest fixed wireless technology.

The country

Ireland

The product

AW3711



Frequency	3400-3800 MHz
Port	4
Beamwidth	**33°**
Gain	20.1 dBi
Tilt	**eRET**

"Alpha Wireless' new narrow beam antennas have enabled us to implement an efficient spectral reuse while also improving network quality. We are still pushing the limits of what we can do with these antennas."

Colin Browne
Head of RF Engineering
Imagine Communications

The challenge

Over 266 individual macro sites support Imagine's 3.5 GHz TD-LTE Advanced Network that features a highly-optimized FWA network design. Imagine is able to provide service up to 150 MBps for as many as 420 customers per site, providing the performance they need to achieve average monthly usage in excess of 450 GB. This performance is higher than many fiber-based FTTH and cable networks, proving that an FWA network is more than capable of providing a viable alternative to FTTH and cable networks.

In order to enhance cell performance and maximize capacity, Imagine implemented channel reuse on the site by deploying a new soft split feature on its 8T8R RRU. However, inter and intra cell interference caused by side lobes between the soft-split-defined sectors meant that the network did not meet all targets set for improved performance.

The solution

Alpha Wireless collaborated with Imagine Communications to develop a solution that would improve this aspect of network performance and enable it to meet its goal for higher capacity. Given that inter and intra cell interference were the main issues, Imagine selected the newly developed AW3711 in the trial for its industry-leading azimuth side lobe suppression design.

The results

Imagine installed the AW3711 antenna on the existing site with the same centerline in a six-sector hardware split (6SHDS) design, and network performance immediately improved. While a significant number of CPE devices had not previously been meeting the expected performance metrics within the cell coverage area, the introduction of the AW3711 substantially improved that metric.

Using six AW3711 antennas in a six-sector hardware split (6SHDS) antenna design, network performance improved by more than 15.5 percent across CPE metrics, and overall signal strength increased by 5.1 dB when compared to the soft split design.

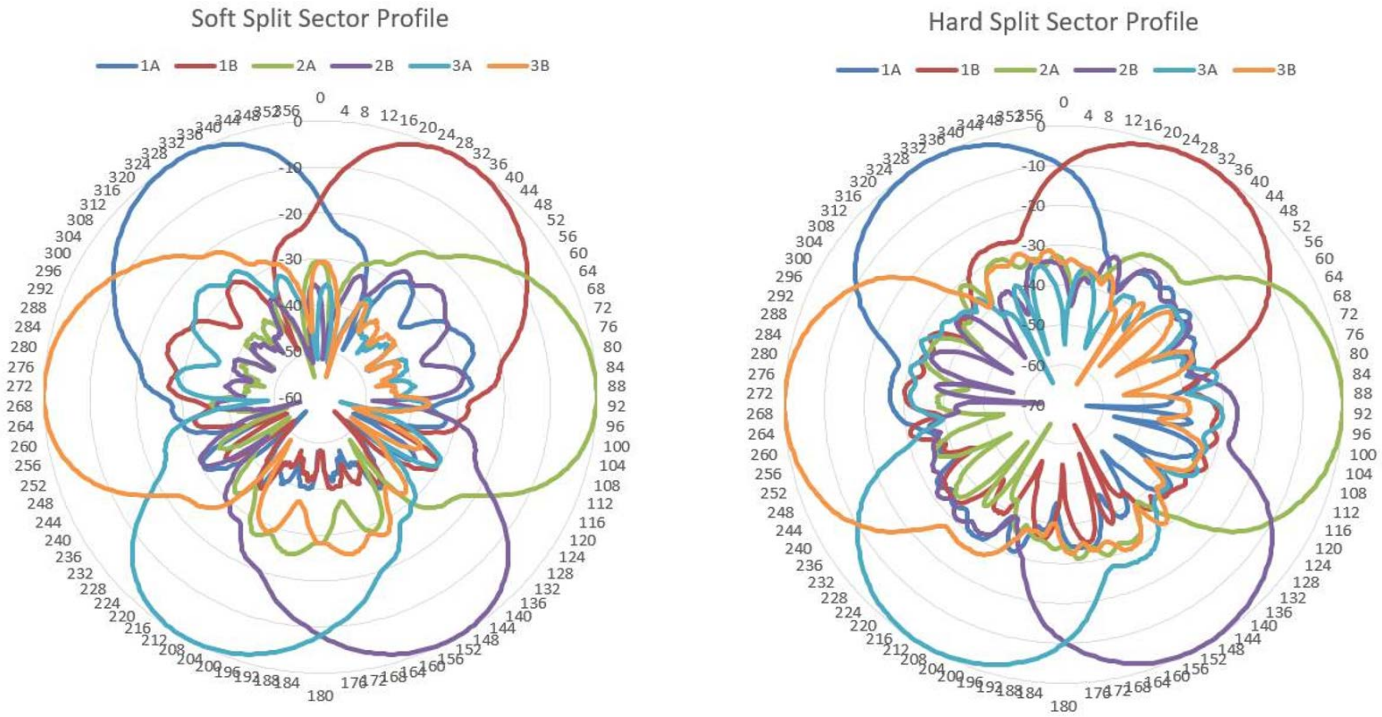
Why Alpha

Alpha Wireless has more than 15 years of experience designing, developing, and delivering antennas for virtually every network configuration. With more than 25,000 antennas successfully installed in 22 countries throughout the world, our experts guide you to the highest-performing network at the lowest possible install cost.

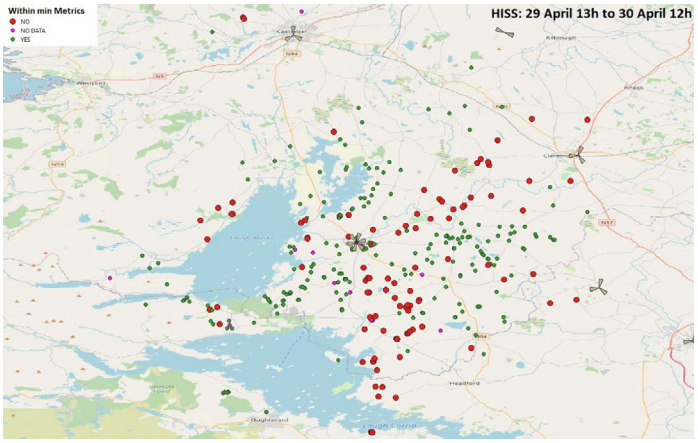
We designed our AW3711 antennas with a narrow beam and side lobe suppression to solve the very issues Imagine was experiencing. Working as a partner in the project, we did what we do best – collaborate and innovate to solve antenna-related network issues. Contact Alpha Wireless today. We have knowledgeable advisors waiting to speak with you.

ALPHA WIRELESS

The data

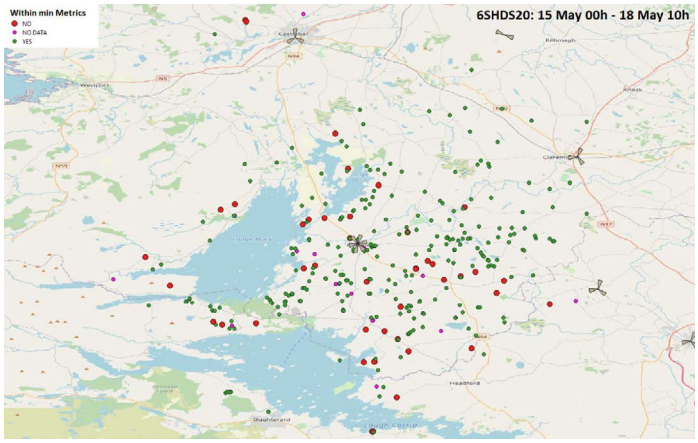


Comparison of antenna profile shows improved side lobe suppression for each configuration profile



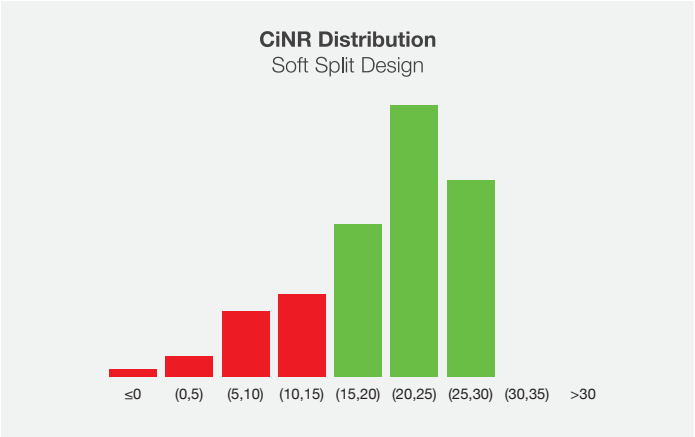
Imagine Communications Trial Sector Geographical Map with SS

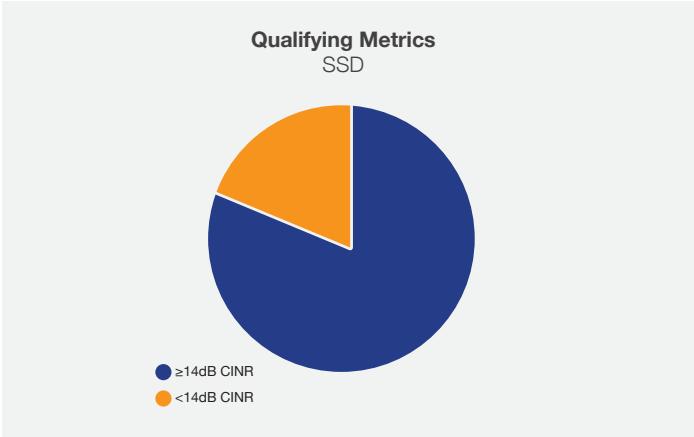
After introduction of the Soft Split feature, the overall CPE devices were not achieving expected performance metrics within the cell coverage area, as shown by the red points.

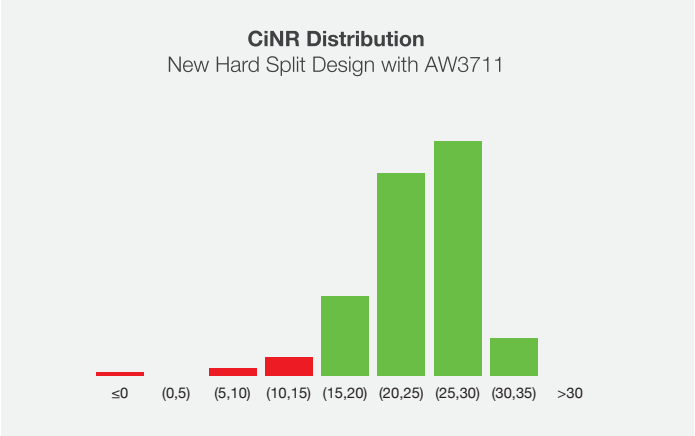


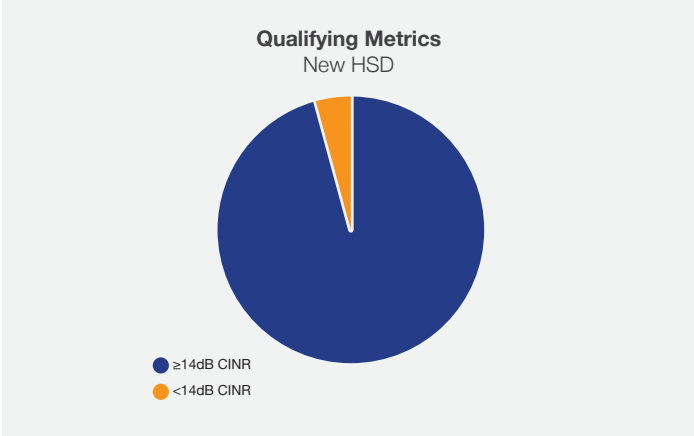
Imagine Communications Trial Sector Geographical Map with 6SHDS

Upon transitioning the trial site to the AW3711 antenna, the overall number of CPE devices meeting expected metrics jumped substantially. Again, as shown by the substantially fewer red points, it is evident how network performance increased.









Imagine Communications Trial Sector CINR Distribution

The pre and post measurements for acceptable CINR Distribution increased substantially as shown in the bar charts below. The target performance CINR Qualifying Metrics pie charts present an improvement in quality which translates to increased down link throughput.

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