



Providing Real-time Network Insights - Above the Tree Line

How Wispr systems partnered with Epiq Solutions to help small wireless providers

Introduction

Wireless Internet Service Providers (WISPs) provide an important service, bringing broadband primarily to rural and suburban communities. A recent survey indicates that 80% of WISP towers are 150 feet or more and cover many square miles with small LTE and CBRS spectrum licenses.

Towers of that height coupled with a patchwork of spectrum ownership mean interference is an ever-present reality and very difficult to track down. Interference at the antenna on the tower is not often observed on the ground where interference drive tests are conducted. Furthermore, many WISP customers use Customer Premises Equipment (CPEs) with antennas mounted on buildings – again making network testing at ground level insufficient.

Network testing takes flight

Wispr Systems, a leading drone manufacturer serving utilities and industrial applications, sought to develop unmanned aerial systems (UAS) for 4G/LTE and 5G network deployment testing and troubleshooting. These drones were designed to conduct autonomous surveys and collect wireless measurements and inspection data over large and inaccessible areas, including taking measurements at tower heights.

Wispr systems tried conventional ground-based network test equipment but found it difficult to adapt to their application. Typical systems weigh a minimum of 4 pounds and are not designed to be operated remotely. This means that these systems could collect a whole flight of data before finding issues with the test setup.

Enter PRiSM

Epiq's PRiSM spectrum analyzer was the ideal choice to pair with Wispr's UAS. PRiSM weighs only 6 ounces, less than a tenth of conventional test boxes, allowing the UAS to fly further and collect more data faster. PRiSM's real-time API is easily integrated to the drone controller system meaning scanning results are relayed real-time to the operator on the ground, providing fast insights and avoiding wasted time.

Together, the combined system provides:

- Speedy, full wireless signal scans between 70 MHz and 6 GHz over large areas
- Interference hunting at a large scale and at tower heights
- Three-dimensional RF signal mapping and coverage assessment
- Arena and building signal mapping
- Disaster recovery: identifying and locating online systems
- Private LTE CBRS network survey: determining identity and configuration of neighboring networks



Wispr's Results

This new UAS with our pocket-sized spectrum analyzer has helped Wispr's customers survey, analyze and troubleshoot their network in real-time with three-dimensional accuracy over large areas. These insights have led to improved network performance and better customer experiences for the WISPs and private network operators that are served by this solution.

"With the innovative and reliable wireless technology provided by Epiq Solutions combined with Wispr Systems' UAS platform, the sky is truly the limit for this system. Customers will be able to save time deploying and maintaining wireless networks and reaching places previously unreachable with this new wireless surveying solution," said WISPr Systems' CEO, Conor Ferguson.

Detailed Insights in Impossibly Small Packages – It's Who We Are

Epiq Solutions helps provide detailed insight into wireless environments to provide ever clearer insights in a rapidly evolving wireless landscape. Epiq Solutions' innovative Software Defined Radio (SDR) based solutions help defense, aerospace, and industrial customers meet their challenges with speed and confidence.

Discover more about Epiq Solutions' [RF sensing solutions](#) and [transceiving](#) by visiting our website. Or reach out to us at info@epiqsolutions.com.