



The Canopy® 400 Series Helps Rapidwave Offer Higher Speeds and Longer Ranges in Noisy RF Areas.



“The OFDM-based Canopy 400 Series is the newest addition to Motorola’s world-proven wi4 Fixed Point-to-Multipoint wireless platform. Sterling Jacobson, president, Rapidwave, discusses how his Utah-based network is integrating the new equipment with its current Canopy system to extend service and maximize return on investment in the 5.4 GHz frequency band... even in one of his business’ noisiest, most challenging RF environments.”

Rapidwave is an Internet Service Provider serving more than 1,000 business and residential customers in a large section of the Salt Lake valley, primarily south of Salt Lake City proper. “Geographically, the area is very advantageous for wireless communications,” says Sterling Jacobson, Rapidwave president. “It is primarily desert, with few trees and relatively high mountaintops from which we can broadcast.” Rapidwave’s service area, however, still presents some significant issues.

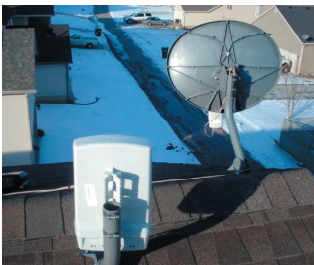
Service Challenges

Chief among the challenges Rapidwave faces are reaching customers in obstructed, near-Line-of-Sight (nLOS) and Non-Line-of-Sight (NLOS) locations, in delivering higher throughput for bandwidth.

“Our Canopy 400 system is located in an exceptionally dense RF area, with competing providers using the 5.2 and 5.7 GHz bands, and already increasing their usage of the 5.4 GHz spectrum,” notes Jacobson. Rapidwave’s primary Salt Lake valley service area has seen an explosion of small businesses, including strip malls, business developments of varying sizes and a great many box stores, large and small. “We strongly believe that this business market is one which will greatly appreciate the greater speeds and capabilities OFDM technology provides in dense downtown-type locations,” Jacobson adds.

Channels Between the Channels

Rapidwave isn’t the only provider that has noticed the advantages of the 5.4 GHz band. As the Salt Lake City area continues its rapid growth, wireless providers are already making extensive use of the 5.4 GHz frequency, which results in its own set of challenges. “Even though the 5.4 band offers 250 MHz of spacing, usage of the spectrum is increasing quickly, which increases the potential for interference,” Jacobson explains. “One reason we like the



MAJOR BENEFITS OF CANOPY 400 SERIES OFDM-BASED TECHNOLOGY

Based on Orthogonal Frequency Division Multiplexing (OFDM) technology, the Canopy 400 Series helps Rapidwave and its customers with:

Higher Throughput.

The Canopy 400 Series provides upgraded performance of up to 21 Mbps of aggregate throughput.

Increased Range.

OFDM-based Canopy 400 technology enables operators to extend network coverage to distances up to five miles per AP cluster.

Outstanding Multipath Performance.

The 400 Series' underlying OFDM technology is proving exceptionally adept at delivering increased performance in multipath environments.

Increased Spectral Efficiency.

With a smaller 10 MHz channel width, the Canopy 400 Series provides up to 50 percent more throughput in half the channel width, resulting in highly cost effective spectral efficiency.

Non-Line-Of-Sight Service.

The Canopy 400 Series helps network operators extend coverage to difficult-to-reach customers and locations in nLOS and NLOS environments.

“We will continue to purchase a wide range of Canopy equipment, and use the 400 Series in locations where its extended range, expanded throughput and NLOS capabilities will help our customers get the bandwidth they need, and help Rapidwave get the ROI we need.” – *Sterling Jacobson, President, Rapidwave*

new Canopy 400 Series is that, in effect, it has more spectrum available to it.” The reason? The 400 Series' smaller 10 MHz channel width allows Rapidwave to more easily find available space and fit in between other 5.4 channels being used. “True to Canopy's history, the system is also remarkably interference tolerant,” adds Jacobson.

Collocation Capabilities

The 400 Series offers GPS synchronization that significantly reduces self-interference as well, allowing for cost-effective collocation with existing Canopy networks. Rapidwave installed its Canopy 400 system on the roof of a golf course clubhouse situated on top of a hill. The system itself is installed on a pole, with four Access Points (APs) and one Cluster Management Module mounted one underneath another in a 360-degree pattern.

LOS Issues

“One of the major reasons we selected this site,” Jacobson says, “is that it allowed for collocation and integration with existing Canopy systems.” Already installed at the golf course site were a number of Canopy APs in various frequencies including 5.2, 5.4 and 5.7 GHz, which the 400 Series' collocation capabilities allow Rapidwave to leverage.

21 Mbps Aggregate Throughput

Jacobson believes the single biggest benefit Rapidwave and its customers are gaining from the Canopy 400 Series is the increased total throughput—of about 21 Mbps—the system provides within an approximately one-mile radius. “Both our business and residential customers appreciate the increases in throughput the new system provides, especially in

terms of bandwidth-intensive applications such as VoIP, high-speed Internet access and online gaming,” Jacobson says.

Sell, Set and Forget

Rapidwave uses Canopy equipment almost exclusively. “We use Canopy for the main reason that it works well in high RF-usage environments because of its exceptional interference tolerance. Plus, we get a lot of bandwidth to sell and we find the technology so reliable, we can basically just sell it, set it and forget it.”

Rapidwave sees the Canopy 400 Series as an addition and complement to the Canopy portfolio, not as a replacement for existing products.



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