Motorola BroadbandPlanner
Point-to-Multipoint and Mesh Network Design Made Easy

THE MOTOROLA ONE POINT WIRELESS SUITE

The Motorola One Point Wireless Suite helps deliver wireless networks with optimal coverage, capacity and performance. The suite includes six powerful elements – BroadbandPlanner, PTP LINKPlanner, LANPlanner, Wireless Manager, RF Management Suite and the AirDefense Solutions – that allow for the streamlined design, deployment, management and security of Motorola wireless networks from their inception through ongoing operations.

Design, propose, deploy and verify trusted high-performance wireless broadband networks consisting of wireless mesh and point-to-multipoint (PMP) solutions

Every wireless broadband network needs a plan. Whether designing a proposed network for an RFP, or planning a network for actual deployment, a network planner or systems integrator needs a powerful tool to streamline the network design, deployment and verification processes. The Motorola BroadbandPlanner enables designers to create highly efficient PMP and Mesh Wide Area Networks that deliver the specified Quality of Service (QoS) quickly and cost-effectively. The tool is a key component of the Motorola One Point Wireless Suite that streamlines the design, deployment and management of comprehensive wireless broadband networks.

BroadbandPlanner gives network designers the power to create an integrated outdoor wireless mesh and point-to-multipoint network design that delivers superior coverage, ample capacity and high performance. At the same time, it provides exceptional accuracy that can significantly reduce the high cost of unnecessary and unproductive truck rolls. In addition, the tool offers sophisticated measurement capabilities that enable performance verification once the network is deployed. BroadbandPlanner is an ideal solution for wireless partners serving enterprises and government organizations wishing to provide municipal applications to public safety teams, city workers and private citizens. Service providers can also use BroadbandPlanner to reduce the number of truck rolls as networks are expanded and new subscribers are connected.

Predictive Design
Motorola has developed BroadbandPlanner as a single design tool optimized for planning and measuring networks utilizing Motorola's Mesh Wide Area Networks (MWAN) 802.11 a/b/g solutions, as well as Point-to-Multipoint (PMP) 5.x GHz FSK and 4.9/5.4 GHz OFDM solutions. BroadbandPlanner quickly estimates the number of access points (APs) needed to achieve mesh network and PMP coverage and capacity requirements. Without the benefit of this predictive design planning, organizations can only guess at the equipment requirements and deployment costs.
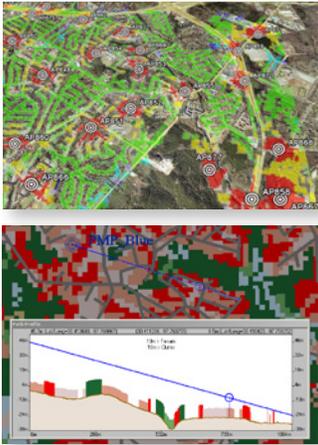
RF-Intelligent Map
Whether completing a budget estimate or generating a full design after being awarded a project, the designer creates an RF intelligent map in BroadbandPlanner that considers the impact of the physical environment on wireless signals. Designers can use shapefiles or land clutter data to represent the environmental factors; BroadbandPlanner transforms these files into RF obstructions with attenuation values and height.

Top Image: Mesh Network Design showing Coverage Heatmap
Bottom Image: Dynamic Path Profiler showing terrain and clutter heights

"What If" Scenarios

After completing the RF-intelligent map, the designer places APs and simulates network performance. BroadbandPlanner takes into account how buildings, foliage and terrain affect wireless signal propagation, and enables the use of "what if" scenarios that provide instant feedback. The software provides a Quick Start AP placement capability in which the designer sets up the parameters for the network and the software automatically pre-determines potential mount points that place equipment to best meet the network's access requirements with the optimal amount of equipment. Urban networks can be easily designed around blocks of tall buildings by watching the dynamically changing RF predictions as remote access points are moved on the map.

Superior Visualization

Through BroadbandPlanner's native UI as well as its rich Google Earth export capabilities, designers are able to see the network, including AP and SM mounting points and link paths, superimposed on

the actual terrain in which the network is to be deployed. In addition to suggesting the optimal access points for mesh nodes and PMP subscriber modules, the software uses its optimization engine to adjust the propagation parameters to match the measured values from the field. This enables a more accurate design that takes the specific characteristics of the deployment environment into consideration.

Dynamic Path Profiler

The BroadbandPlanner path profiling tool enables designers to zero in on bottlenecks that are causing predicted performance to deteriorate. With a dynamic color-coded view of terrain and clutter height along the current link path, designers can see exactly what's in the way – from tall buildings to hilly terrain to dense foliage – and can adjust the path to achieve the desired performance. The path view changes as the path end-point is moved.

Measure and Validate QoS

During and following network implementation, the deployment team can use BroadbandPlanner to collect coverage and interference measurements across a wide range of frequencies to verify that the network meets expectations. The software visualizes this critical QoS information on a map of the region including displaying RSSI (Received Signal Strength Intensity), SIR (Signal to Interference Ratio), SNR (Signal to Noise Ratio), and throughput data rate. Designers can also use measurements to automatically fine-tune RF attenuation factors for a more accurate RF prediction model.

Reporting Options

BroadbandPlanner has a variety of reporting options that enable professional presentation of the software's output. For example, the designer can export design and measurement files and visualize them in Google Earth. This capability replaces static screen shots with dynamic viewing of information on a map of the area and enables easy information sharing about initial design, periodic updates and the signal level being delivered by the network. The coverage percentage report visualizes how a network would perform according to a specified QoS level and clearly shows what percent of the selected area would or would not meet the criterion.

FEATURES	BENEFITS
Integrated Mesh and Point-to-Multipoint Design	Save time by planning Mesh and Point-to-Multipoint network layers together in one design tool. Includes Mesh 802.11a/b/g and Point-to-Multipoint 5.x GHz FSK and 4.9/5.4 GHz OFDM products.
Powerful and Fast RF Predictions	Create fast and accurate RF performance predictions which utilize terrain height as well as urban, environment and foliage clutter information.
Google Earth Visualizations	Create credible and compelling proposals with pan/zoom enabled network visualizations in Google Earth.
Integrated Measurement and Verification	Streamline deployments with integrated measurement features for Mesh and Point-to-Multipoint.
Optimal Equipment Placement Workflow	Easily choose the best equipment locations for Mesh nodes and Point-to-Multipoint access points and subscriber modules, as well as the best access point for each subscriber module.
RSSI Heat-map Workflow	Quickly see the expected signal strength for a Point-to-Multipoint subscriber module in the RSSI heat-map view rather than sending a service van to the location.
Urban Networks Workflow	Efficiently design networks in urban areas with tall buildings where remote access points are required for backhaul.
Dynamic Path Profiler	Zero-in on bottle-necks by viewing the terrain and obstruction profile in real time between any two points on the map.
Platform Compatibility	Use with Windows XP/Vista. Convenient field portability through use on a laptop.

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