

# Ellipse

Superior Planning, Management and Optimization of Next-Generation Backhaul Networks

The pressure on mobile operators to upgrade and expand legacy transmission infrastructure for LTE and LTE-Advanced backhaul is here to stay. The deployment of new S1 and X2 interfaces and connectivity for 3G and 4G small cells means that transmission engineers have to plan larger and more complex networks. And, they must do so in the most time- and cost-efficient way possible. Ellipse is a software application for the dimensioning, planning and optimization of microwave link and wired backhaul networks. Relying on trusted engineering methods, it incorporates all the latest ITU specifications required for accurate network design. More than just a microwave engineering tool, Mentum Ellipse® (also known as Ellipse) is a carrier-grade platform that supports the entire backhaul lifecycle, from design to management and optimization.

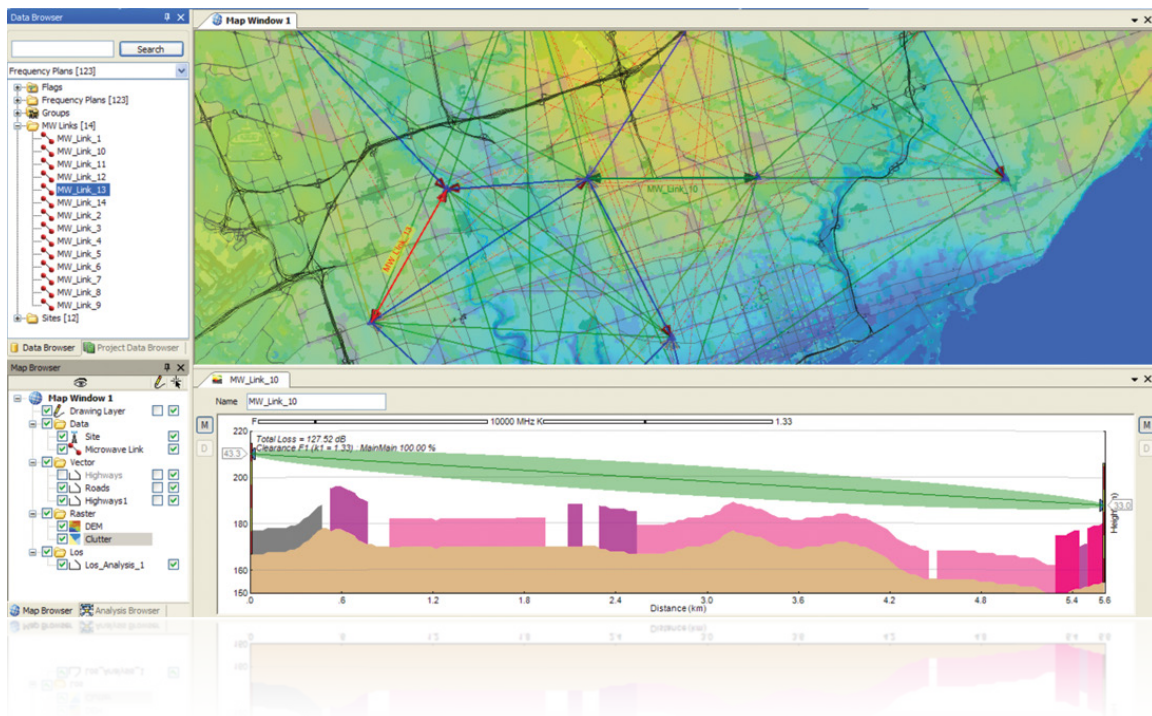


Figure 1. Ellipse Graphical User Interface

## Microwave and Transmission Network Planning and Management

Operators adding new coverage, increasing capacity or upgrading transmission networks need efficient network planning and optimization software. Ellipse enables operators to accurately address the dimensioning and management challenges brought on by LTE, small cell and WiFi-offload services. Its carrier-grade software architecture also enables reliable multi-user collaboration via a powerful data manager that ensures resilient and consistent national transmission network designs for hybrid networks.

### Engineers using Ellipse are able to:

- Proactively plan and manage large microwave networks
- Design reliable line-of-sight (LOS) and non-line-of-sight (NLOS) links
- Manage combined wired and wireless backhaul networks
- Reduce backhaul CAPEX via accurate dimensioning
- Efficiently manage networks and optimize frequency use to reduce OPEX

## Innovation Leads the Way

Ellipse is a leading software product for transmission design and optimization. It provides support for planning, operating and optimizing mobile backhaul and other transmission networks. Ellipse leads the market by supporting the largest Tier-1 carrier environments, for which customers require reliable and flexible deployment options and workflows that support real operational efficiencies. Ellipse drives innovation by taking full advantage of the latest software technologies in its future-proof platform. It is truly a market leader when it comes to supporting the management of hybrid networks.

## Real-World Planning Solutions

The true value of any engineering simulation tool is its ability to replicate real-world environments. Ellipse features a full path-profile analysis that includes Fresnel zone clearance, multiple k-factors, terrain/clutter/building visualization, reflection analysis and antenna height optimization. It takes into account several resolutions for terrain altitude as well as obstacle heights associated with clutter type, buildings and the digital elevation model layer. The 3D viewer also visualizes microwave links in urban areas in a unique way. All of this is available with an intuitive user interface and highly interactive GIS, helping users quickly and easily master the application.

## Point-to-Point and Point-to-Multipoint

Ellipse provides unmatched microwave engineering capabilities, including extensive support for all of the models required for LOS and NLOS planning. The advanced reflection analyses aid small cell backhaul planning on high frequencies in urban areas. Additionally, detailed interference analysis and Automatic Channel Allocation allow transmission planning engineers to cost-efficiently meet reliability, capacity, quality and availability targets. As a result, engineers can plan short, medium and long microwave links, confident that their designs will deliver strong results and perform well in the real network environment. The transport planning features in Ellipse allow transmission

## Scalable Solution

Designed specifically with transmission engineers in mind, Ellipse provides its users with all the information they need to plan, manage and optimize backhaul networks, where and when they need it. With a modern look and feel, an intuitive navigation flow and online knowledge base and training resources, microwave engineers can quickly get up to speed and leverage the full potential of Ellipse's capabilities. Through built-in wizards and a centralized database manager that promotes multi-user collaboration, Ellipse ensures the operational gains and efficiencies required to plan, manage and optimize today's, and tomorrow's, complex backhaul infrastructure.

### Innovative

- .NET based architecture and 64-bit support
- Scalable to large networks
- Efficient, customizable bulk reporting
- Leading NLOS capabilities
- Integrates with Mentum Planet to support transmission networks and RAN

### Interactive

- Advanced GIS
- 3D viewer for urban areas
- Detailed path-profile analysis
- Patented, off-path analysis tool
- Antenna height optimization

engineers to plan and optimize network topology, traffic routing and link utilization. This enables them to right-size all part of the backhaul network to the expected traffic load and to avoid bottlenecks.

### Accurate

- LOS and NLOS support
- Extensive microwave engineering model support
- Detailed interference analysis
- Advanced Automatic Channel Allocation
- Unique transport module

### Easy and Future-proof

- Intuitive navigation
- Templates and configuration wizards
- Large-scale backhaul network management
- Multi-user capabilities
- Geodata download and web map displays

## Ellipse Benefits

### Increased Efficiency, Consistency and Collaboration

Centralized data management allows for efficient collaboration and reliable hybrid network designs.

### Cost Effective

Detailed link design and assessment features allow engineers to cost-effectively define optimal backhaul architecture.

### Unmatched Accuracy

Increases accuracy and saves time, allowing engineers to aggressively push more data through the existing spectrum.

### Complete End-to-end Solution

Delivers a complete cellular and backhaul planning and optimization solution by integrating seamlessly with Mentum Planet.

### Ease of Use

The use of open and industry-standard formats enables simple installation, quick project start-up and easy sharing of results.

### Superior Microwave Link Planning

Full path-profile analysis, including Fresnel zone clearance, multiple K-factors, terrain/clutter/ building visualization, reflection analysis, off-path obstruction analysis and more.

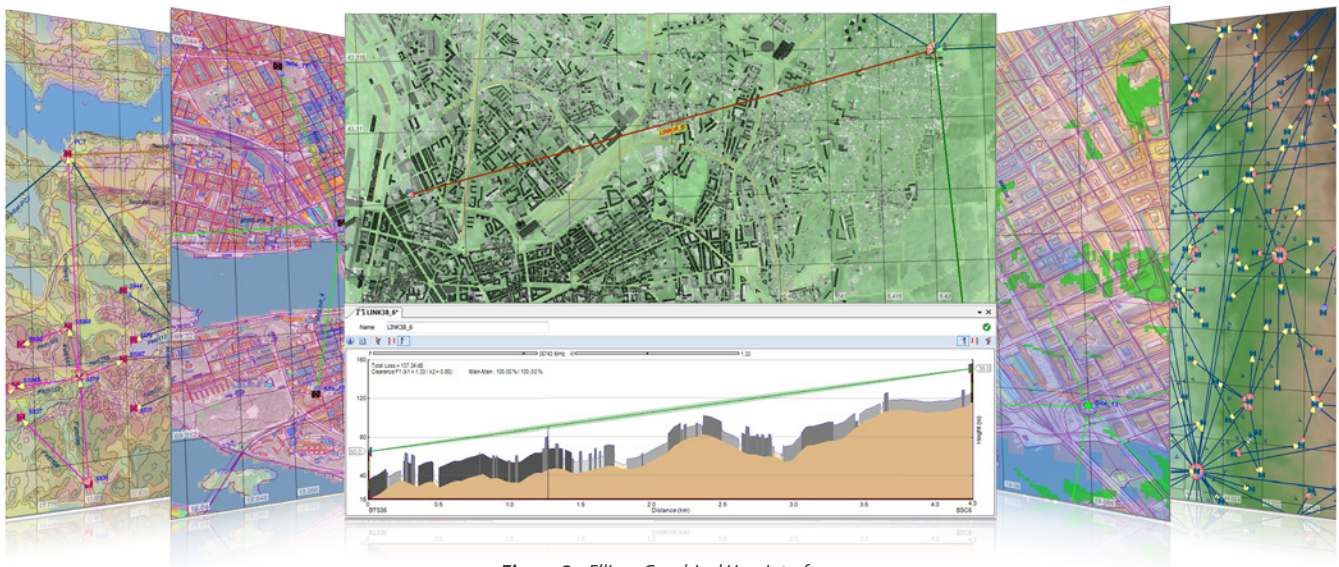


Figure 2. Ellipse Graphical User Interface.

# Solution Packaging

## Mentum Ellipse Software Editions

Ellipse is offered in four distinct editions in order to meet your requirements and your budget. The support levels, from Silver to Platinum, follow the edition levels.

- **Ellipse Basic Edition:** microwave link design including project management and advanced geodata handling.
- **Ellipse Professional Edition:** a professional-grade solution for microwave network design and wireless backhaul management.
- **Ellipse Enterprise Edition:** a centralized, multi-user solution capable of managing large wireless backhauls with several engineers collaborating on the network design.
- **Ellipse Ultimate Edition:** a high-end solution for enterprises, including all Ellipse modules.

### Mentum Ellipse Software Editions

	Basic	Professional	Enterprise	Ultimate
Microwave Link Design	Yes	Yes	Yes	All Inclusive
Network Design and Management	No	Yes	Yes	All Inclusive
Multi-User Collaboration	No	No	Yes	All Inclusive
Add-Ons	No	Optional	Optional	All Inclusive
Integrated with Mentum Planet	Yes	Yes	Yes	All Inclusive
Licensing	Stand-alone	Stand-alone or shared	Stand-alone or shared	Stand-alone or shared
Support	Silver	Gold	Gold	Platinum