



BLUE DANUBE™

# BeamPlanner™

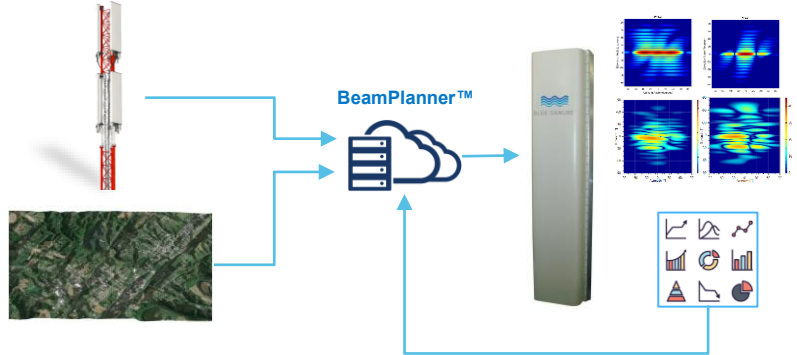
## Antenna Optimization Platform

A cloud based beam optimization platform used in conjunction with Blue Danube Systems' BeamCraft™ active antenna systems that enables wireless carriers to flexibly customize RF patterns to optimize cell capacity and coverage based on siting conditions and dynamic user distributions. Leveraging advanced analytics techniques and mobile users' behaviors, the platform optimizes multi-site active antenna deployment.



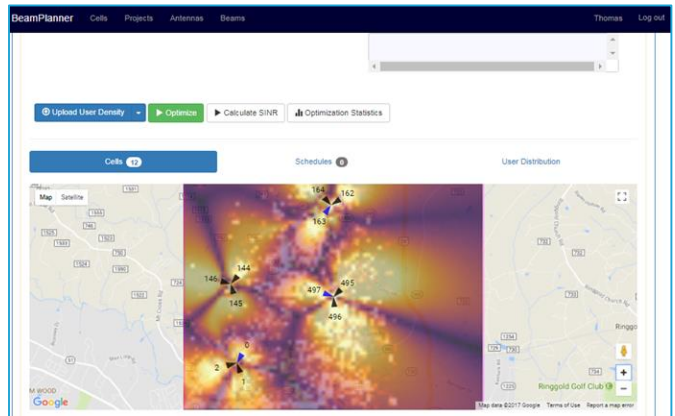
### Scalable and Flexible Platform

- Cloud based and intelligent with sophisticated machine learning algorithm to optimize antenna patterns based on time varying User Distribution
- Optimizes multi-site active antenna deployment by directing RF energy to where the traffic is while steering clear of interference from neighboring sites.



### Intuitive User Interface

- Designed with users in mind to maximize simplicity and ease of use with intuitive workflow
- Secured access with HTTPS on standard web browsers
- Integrates with existing wireless carrier's RF planning tools
- Facilitates network-wide configuration, scheduling, and management of BeamCraft active antenna systems for streamlined operation.



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### Software Enabled Smarts

- Optimizes service level with Time of Day beam definition
- Supports single and multiple site optimization with sophisticated machine learning algorithm
- Intelligent simulation accurately predicts achievable service level quality of wireless deployment







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## Antenna Optimization Platform

Comprehensive functionality maximizes wireless carrier's efficiency and improves RF planning dynamics with intuitive cloud based platform

-  **Configuration**  
Defines cell site antenna parameters
-  **Simulation**  
Sophisticated algorithm based on 3GPP modeling
-  **Performance Management**  
Provides results based on SINR (Signal to Interference and Noise Ratio) and throughput
-  **Role Based Access**  
Ensures secured partition of data for multiple users in organization



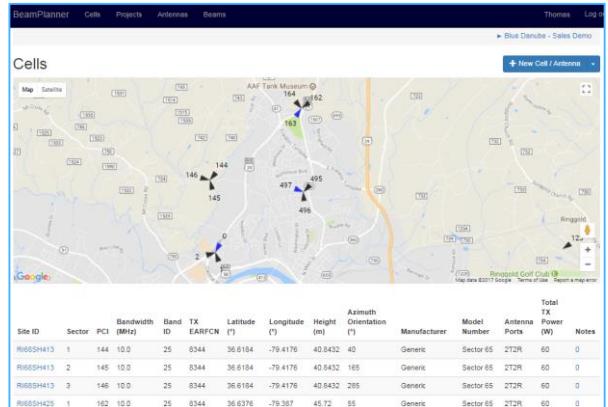
## Comprehensive Feature Set

- **Multi-Tenancy Administration:** Provides secured access for multiple operators with role based access
- **Cell Site Upload:** Enables RF engineers to upload various cell site inventory information (cell site location, height, types of antennas)
- **Google Map Display:** Easily identify deployed sites with clear identification of conventional antenna vs. active antenna system
- **Single and Bulk Cell Site Configuration:** Enables configuration of a cell site individually or bulk with .csv file upload
- **Flexible Project Based Analysis:** Enables RF engineers to create projects for specific simulation analysis with comprehensive results comparisons
- **Customized Antenna Patterns:** Comprehensive options to design antenna beams based on azimuth, elevation, shapes, and gains to meet the needs of users
- **Complete Simulation Effect:** Enables RF engineers to predict expected Service Level Quality through 3GPP compliant models with various RF patterns
- **Support User Distribution:** Analyzes the effect of deployment based on varied User Density throughout the region of interest
- **Scenario Based Analysis:** Optimizes the result based on various scenarios as defined with Time of Day or Day of Week variables
- **Optimization Algorithm:** Leverages sophisticated machine learning algorithm to provide choices of various antenna beams to maximize user experience

# SEQUOIA

# NORTHGATE

# SILVERLAKE

Site ID	Sector	PCI	Bandwidth (MHz)	Band ID	TX EARFCN	Latitude (°)	Longitude (°)	Height (m)	Azimuth Orientation (°)	Manufacturer	Model Number	Antenna Ports	Total TX Power (W)	Notes
R65SH413	1	144	10.0	25	5344	36.6154	-79.4176	40.8432	40	Generic	Sector 65	272R	60	0
R65SH413	2	145	10.0	25	5344	36.6154	-79.4176	40.8432	165	Generic	Sector 65	272R	60	0
R65SH413	3	146	10.0	25	5344	36.6154	-79.4176	40.8432	265	Generic	Sector 65	272R	60	0
R65SH425	1	162	10.0	25	5344	36.6376	-79.367	45.72	55	Generic	Sector 65	272R	60	0



## Ordering

- BDS-SW-0011 (BeamPlanner Cloud version)