

Blue Danube Systems Enhances BeamPlanner™ Software Including Artificial Intelligence and Machine Learning Capabilities

- Enhanced simulation engine with 3D ray tracing module improves simulation accuracy to increase confidence in post-deployment performance expectations.
- Deep learning functionality enables predictive beamforming with BeamCraft™ Coherent Massive MIMO products.

SANTA CLARA, Calif. – February 21, 2019 – [Blue Danube Systems](#), a provider of intelligent wireless access solutions that help mobile operators address the challenge of explosive data growth, is today announcing new capabilities into its BeamPlanner™ cloud software suite. BeamPlanner is the world's first network planning and optimization tool for beamforming antenna systems. With the new and enhanced artificial intelligence (AI) and machine learning (ML) functionalities, BeamPlanner becomes the automated platform for network-wide operation of Blue Danube's Coherent Massive MIMO systems.

BeamPlanner utilizes an intelligent analytics-based, data-driven multi-site optimization engine that now has been enhanced with 3D ray tracing capabilities for improved prediction results accuracy. The simulation platform provides actionable beamforming recommendations and expected capacity results matching the real-world performance results validated through drive tests, network statistics data and standard key performance indicators (KPIs). In addition, terrain elevation and building data models have been updated that, together with 3D channel models, enable even more accurate performance prediction. This is also true in vertical domains accounting for high rise buildings and other tall structures in dense urban city environments.

Together with Blue Danube's BeamCraft Coherent Massive MIMO systems, BeamPlanner enables radio networks to dynamically adapt to changes in traffic patterns. This intelligence combines data from different sources and can be integrated into an operators' network management systems to enable RF function virtualization and dynamic beam steering to adapt to changes in user traffic distribution, minimize interference and improve signal quality where it is needed most at any given time. All data are fed into a deep neural network that continuously optimizes beam patterns based on estimated user locations, traffic demand, interference and predicted performance. Reinforcement learning algorithms are implemented to enable a cycle of continuous improvement based on observations of and adaptation to live network conditions. Other AI/ML algorithms include pattern recognition for predicting user behavior and traffic hotspots.

BeamPlanner and BeamCraft also enable vertical beamforming to address coverage issues common in high-rise buildings. The versatile solution can create arbitrary beam shapes from vertical wide beam to cover a tall building or sharp pencil beams to only focus on users in certain floors. Controlling beam power and shape allow signal to reach users behind thick walls without resulting in excess interference in the surrounding area. In this way BeamPlanner enables the kind of agile multi-dimensional radio operation that can be utilized to maximize user experience at special events or provide capacity based on time-of-day movement of mobile users.



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“Operators need tools for large scale deployment and operation of massive MIMO antenna systems,” said Mihai Banu, founder and CTO of Blue Danube Systems. “With BeamPlanner operators can predict the network performance with high confidence and add capacity where it makes most operational and financial sense. The new AI/ML capabilities will enable fully automated proactive beamforming for optimized capacity and user experience.”

Blue Danube will be demonstrating BeamPlanner and BeamCraft capabilities at Mobile World Congress in Barcelona, Spain February 25-28. Blue Danube can be found in Hall 2, hospitality stand 2M63.

About Blue Danube Systems

Blue Danube Systems designs intelligent wireless solutions for mobile communication providers and other applications. Our portfolio of active antenna array products is based on an innovative technology that assures RF coherency at any frequency and form factor. The solutions are implemented on a cost-effective and flexible hardware architecture with software enabling highly accurate and agile beamforming. Combined with cloud-based AI/ML algorithms for network optimization, our Massive MIMO solutions enable a significant increase in capacity on today’s cellular networks and smartphones while being fully extensible to future 5G networks. Blue Danube Systems is a privately held start-up backed by Sequoia Capital and Silver Lake along with other investors including AT&T. For more information, please visit www.bluedanube.com

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