



RF PLANNING

When investing your capital dollars in wireless infrastructure, Radio Frequency (RF) planning is the key to getting the most for your money.

With a comprehensive RF design, optimizing deployment costs is just a part of the process.

Radio waves are ubiquitous and the spectrum can be very crowded with users being forced into smaller channels with very tight regulation. To make things even more difficult, you also have to consider the variances introduced by

topography, buildings, visible and invisible sources of RF interference.

Analyzing and explaining complex RF technology and features is a major specialization at Redline.

At Redline we have the tools and in-house expertise to analyze, design and ensure the performance of your planned wireless network. Our RF analysis provides the essential details that are a prerequisite to developing a comprehensive project design. These details include coverage predictions for potential base station sites and assignment of radio frequency resources. This minimizes

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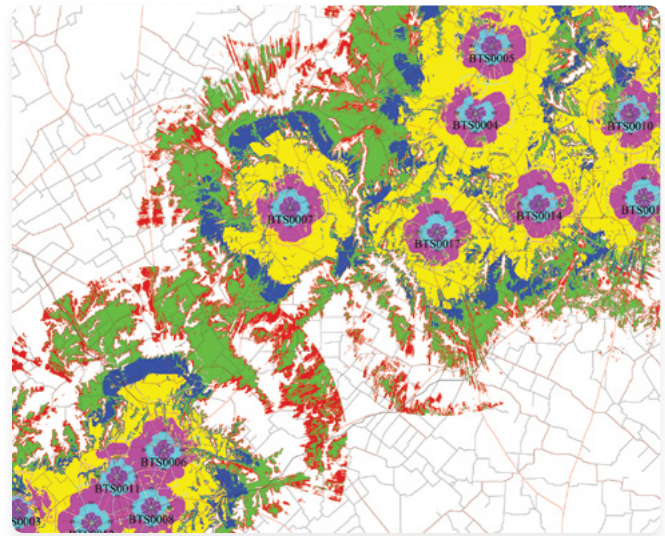
interference between transmitter sites and provides optimal system capacity and performance.

Interference can be a challenge for performance and reliability, while also being difficult to interpret and resolve.

RF planning is a repetitive cycle requiring multiple stages and Redline has the advantage of an in-house RF engineering team with extensive knowledge to assist in this process. Redline uses analysis tools that model the wireless network using high-resolution geographic information system (GIS) databases. In addition, collecting wireless signal level data through field visits gives the Redline RF design team the ability to analyze predicted versus actual values observed in the field.

At Redline the RF design includes:

- Detailed base station site specifications
- RF power
- Antenna specifications
- Antenna heights and pointing coordinates



- RF coverage
- Modulation rates (throughput/capacity)
- Signal and modulation for terminals
- Backhaul link requirements

RF optimization activities should be repeated on an annual basis.

RF optimization is an integral service when evaluating your network to increase efficiency and lower costs. Let the experts at Redline ensure you are getting the most out of your wireless network.

ABOUT REDLINE COMMUNICATIONS

Redline Communications is the creator of powerful wide-area wireless networks for the world's most challenging applications and locations. Used by Oil & Gas companies, militaries, municipalities and telecom service providers, Redline's powerful and versatile networks securely and reliably deliver voice, data, M2M and video communications for mission-critical applications.