



Customer Situation:

Seeks an effective communications tracking system with high bandwidth (3 Mbps) and low latency that can cover great distances for its fleet of seagoing vessels.

Customer Challenge:

For the purpose of the demonstration, to maintain a high-speed wireless connection for several hours between two ships moving at speeds of up to 13 knots and at a distance of up to 20 kilometers.

BATS Solution:

Integrated with Redline Communication's AN-80i, the Broadband Antenna Tracking System's BTS-2500 was successfully demonstrated to meet or exceed the customer's requirements for bandwidth, low latency, distance and continuous tracking.

"This was an impressive demonstration conducted on a very choppy sea. Our customer said the initial tests were very positive and went much better than expected. They will be continuing their tests under more challenging conditions and scenarios."

— Han Mutlu
CEO, Global Forte

"The BATS systems quickly locked in and were able to track each. The applications ran perfectly with a stable bandwidth of 4.5 Mbps and a maximum latency experience of less than 5 milliseconds."

— Dino Bakakis
Managing Director, Middle East
Redline Communications

Background

A customer with a fleet of ships asked Global Forte, a high tech product and consulting company, if it had an economical solution to fulfill their need for high-speed communications connectivity for their ship-to-ship and ship-to-shore operations.

Global Forte recommended the BATS BTS-2500 system integrated with Redline Communication's 5.8 GHz AN-80i radio that utilized a two-foot grid antenna installed horizontally (26dBi, 6° H, 9° V) to get more azimuth. A live demonstration was set for late June 2009 in the Sea of Marmara, which is the major waterway linking the Black Sea and the Aegean and Mediterranean seas via the Bosphorus and the Dardanelles.

The BATS/Redline system with pan-tilt aiming chasses were mounted on the main mast of each ship at a height of 16 meters above the sea. Two scenarios were demonstrated – one with two ships moving at the same time without criss-crossing and turning maneuvers and one where the ships did criss-cross and turn. In the first scenario one ship was moving at 2 knots and the other at 13 knots. Global Forte successfully demonstrated camera surveillance broadcasting from one ship to the other as well as Internet protocol telephone communications between the ships. The maximum distance achieved was 44.3 kilometers (24.6 nautical miles), more than doubling the customer's requirements or expectations. The RSSI hovered around -50 when the distance between the ships was under 20Km and -60 between 20-40Km.

In the second scenario, the performance characteristics of the BATS directional antenna system was able to create search patterns and predictive algorithms to automatically locate the desired connection point, establish communication and track both of the broadband wireless units as the ships criss-crossed and turned. The applications ran successfully with high throughput and low latency.

"Since the customer was satisfied with the ship-to-ship results, it did not see any need for the ship-to-shore tests," said Han Mutlu, Chief Executive Officer of Global Forte and who witnessed the successful demonstrations.

The Technology Behind BATS

The BATS technology is agnostic as to frequency and broadband vendor radio equipment. The technology can automatically reposition the directional broadband antenna mounted on a vessel to maintain a wireless broadband network session. This unique tracking capability is an industry-first feature that allows moving vehicles to obtain real-time access to resources inherent to broadband communications. The BATS system allows for rapid deployment of wireless networks as well as the geographic extension of a current network for customers who have limited broadband access or rely on expensive, low-bandwidth satellite communications.

Maritime Deployments

Wireless communications over water have unique challenges. Water can adversely reflect radio waves and can have a direct impact on reliability. Environment conditions such as saltwater, high humidity, temperature and barometric pressures can radically attenuate radio signals.

About Broadband Antenna Tracking Systems

Broadband Antenna Tracking Systems (BATS) provides a proprietary software and hardware platform that locates, locks and tracks wireless broadband communication access points. Our products are designed for quick deploy communications centers and mobile to fixed and mobile to mobile vehicle communications. BATS was founded by three information technology professors and researchers from Purdue University in West Lafayette, Indiana. For more information, please visit www.batswireless.com.

BROADBAND ANTENNA TRACKING SYSTEMS ARE IDEAL SOLUTIONS FOR:

- Rapid deployment of wireless network communications
- Systems with unknown or little information associated with the direction to friendly access points
- Situations where it is difficult to manually align antennas for acquisition and optimal signal strength (both near and distant)
- Service providers that have limited skilled resources in deploying wireless broadband communication systems
- Systems that require frequent antenna re-alignment due to natural causes or equipment movement
- Automatic repositioning of directional antennas to secondary (backup) communication points is required if a communication point is moved and/or no-longer available
- Mobile to mobile broadband communications over long distances utilizing directional antennas

About Redline Communications

Redline Communications is the leading provider of fixed and mobile standards-based wireless broadband solutions. Redline's RedMAX™ WiMAX Forum Certified™ system, RedMAX 4C Mobile WiMAX™ products, and its award-winning broadband wireless infrastructure family of products – RedCONNEX™ and RedACCESS™ – enable service providers and other network operators to cost-effectively deliver high-bandwidth services, including voice, video and data communications. Redline is committed to maintaining its wireless industry leadership with the continued development of WiMAX and other advanced wireless broadband products. With more than 75,000 installations in 80 countries, and a global network of over 140 partners, Redline's experience and expertise helps service providers, enterprises and government organizations roll out wireless broadband networks to support advanced communications.

About Global Forte

Global Forte is a product and consulting company that specializes in the developing and marketing of high technology products, technology infrastructure and services in international markets. With its headquarters in Istanbul, Turkey and branch offices in Dubai and Kuwait, Global Forte is a provider of integrated business, technology development and consulting in the areas of **strategy, solutions and professional services** across the globe.

