Troll’s ST500 series spectrum tracking antenna maximizes any data link’s range, data-throughput, robustness and overall performance. It is used to support wireless air-to-ground communication for high-speed video and data networks.

The ST500 is easy to operate, automatically locating the airborne or ground asset’s RF signal and tracking it effortlessly. Tracking is maintained even when signals are emanating from rapidly moving vehicles, making operation effectively “hands-off”.

Troll’s ST series antennas support various bands, including L, S, C, X and Ku, and the system is available in single, dual or tri-band configurations. ST500 antennas are radio-agnostic, and will track any analog or digital RF waveform. The very narrow beamwidth of these antennas improves signal integrity and simultaneously minimizes or eliminates interfering or jamming signals.

The embedded spectrum analyzer is the heart of the system’s RF tracking capability, and provides the ability to track RF signals without the use of metadata. It also makes it easy to identify and analyze interference and channel availability, particularly in saturated RF environments.

Troll’s ST antenna system decodes all the standard metadata protocols, including NavTrack, NEMA, KLV601 and Rover. (Please refer to the factory for additional acceptable formats.) This information can be used to steer to the target in the traditional “telemetry-tracking” method. ST antennas combine this traditional method with RF-tracking, producing the most robust tracking system possible.

The system features a highly accurate, optimized high-gain antenna that provides exceptional long-range performance. Ranges of greater than 300km, (150 NM, 170 miles) are easily achievable.

Applications:
- Tracking UAVs or manned aircraft
- Permanent air-to-ground data link installations
- Improving existing data link performance
- Extending data link range and availability, regardless of airborne antenna system
- Minimizing external interference or jamming signals
ST500 Spectrum Tracking
SPECIFICATIONS L, S, C, X and Ka Bands

ST500 Physical Characteristics

General:
System Type: High-Gain Cavity Array
Main Antenna: One (1) High-Gain Offset Fed Truncated Parabolic
Diversity Antennas: Five (5) Medium-Gain, Slotted Dipole
Down-Converters: Six (6) UHF Downconverters with LNA.
Receiver: DVB-T/COFDM Multi-Input Maximal-Ratio Combining (MRC) ASI Output

System Interface:
Connection: Single Control Cable
Control: Serial RS485
Power: 28 vdc (3 Amps) or 110 / 220 VAC
Outputs: 2 ASI, 75 ohm
Control Device: S-Type Site Controller (ST750, X750)

Options:
Self-enclosed Remote Panel Antennas
Multi-Bands Available (up to quad band)
Dual Receiver Mode (High-Gain / Five-Channel Diversity)
Filtering per System Requirements
Bidirectional Systems Available

Main Antenna:
Type: Offset Fed Truncated Parabolic
Frequency: 1.4 GHz to 15GHz
Gain: 18 dBi to 33 dBi (Dependant on Frequency)
Antenna Polarization: Vertical (Quad Polarization Optional)
Steering Azimuth: Continuous Rotation, Max Speed 60 Degrees/Second
Steering Elevation (Optional): Steering + 35 to 5 degrees (Recommended above 3GHz)

Diversity Antennas:
Type: Cavity Backed Dipole
Number: Up to Five (5) Evenly Spaced Around the High-Gain Antenna
Antenna Gain: 12 dBi minimum (Frequency Dependant)
Antenna Polarization: Vertical (Quad Polarization Optional)
Antenna Beamwidth: Azimuth 75° / Elevation 38°

Block Down Converter:
RF Frequency Range: 1.4 GHz to 15GHz
RF Input VSWR: <1.5:1
RF Input Frequency Range: 810 – 300 MHz
RF Input Impedance: 75 ohms
Noise Figure: <3.0 dB

Receiver/Demodulator:
Main:
Transport stream: Six (6) Channel UHF COFDM RX
Control: Multi-Input Maximal-Ratio Combining (MRC)
COFDM num of Carriers: ASI Serial Control via Troll Control System
Modulation Types: 2K
Forward Error Correction: QPSK, 16-QAM & 64-QAM
Guard Intervals: 1/2, 2/3, 3/4, 5/6, 7/8
Input Frequency: 1/32, 1/16, 1/8, 1/4
Input Impedance: 49 - 862 MHz
Bandwidth Selections: 75 ohm
Decryption Options: 6, 7 or 8 MHz
AES- 128/256

Visit us at our website for product and corporate information. See video imagery from this system.

www.TROLLSYSTEMS.com

Specifications subject to change without notice.

Uses:
- Tracking UAVs, UGVs or Manned Aircraft
- Fixed Air to Ground Sites
- Mobile Air to Ground Sites
- Air to Ship Sites
- Ship to Shore Sites

DVB-T Spectrum Plot

Photo Courtesy of U.S. Army