

DART-T

Dual-Mode All-Band Relocatable-Communications Transport Terminal HC-BLOS Family of Products



Automated troposcatter communications — the next generation in high-capacity beyond-line-of-sight (HC-BLOS) systems

Benefits

- Automatic link alignment
- Automatic mission planning software
- Automatic dynamic bandwidth
- Automated graphical user interface (GUI) for ease of use and maintainability
- Highly mobile system in small footprint
- Quad angle/frequency diversity with a single antenna eliminates the need for two antennas
- Optional multimode operation: Tropo and SATCOM
- Up to 100 Mbps using advanced RTM-100® troposcatter modem
- Lower weight and power usage
- No recurring satellite bandwidth costs
- No Satellite/Gateway Access Requests (SAR/GAR)
- No satellite latency or vulnerability
- C and Ku-band operation

Raytheon has been engaged for more than 40 years in radio communications including satellite communications (SATCOM), troposcatter communications, and microwave line-of-sight communications for customers throughout the world. Our systems have been designed for a wide range of applications including military and civil communications, command and control systems, air traffic control systems, and surveillance systems.

DART-T is designed to allow for field selection of operational mode (troposcatter or SATCOM) in accordance with mission requirements. Interchangeable feeds are palletized for quick, easy removal and replacement, allowing the end-user to effectively change operational mode and/or frequency bands in the field within minutes. Thus, each

DART-T provides troposcatter operation in tropo C and tropo Ku band, as well as SATCOM operation in C, X, Ku and Ka band. The Ku-band DART-T system can achieve the same or better performance from one antenna as systems that currently require two antennas as with existing TRC-170 systems.

The recent trend in military communications places a high reliance on tactical SATCOM and/or relay of wideband traffic via aerial relay for (beyond line-of-sight) BLOS reachback connectivity. The increased need for high-capacity bandwidth reachback has shown scalability challenges due to limited satellite communications/air-level resources, as well as capability and operational limitations of available high-capacity line-of-sight (HCLOS) systems. DART-T is

designed to alleviate bandwidth constriction in current tactical networks without increasing operations and maintenance costs normally associated with SATCOM or HCLOS solutions. The Raytheon DART-T troposcatter system provides complementary capabilities and should be considered as part of a comprehensive military communications architecture.

Antennas range from 8 feet (2.4 meter) to 30 feet (9 meter) in diameter. High wind and tower mounted applications are available. Troposcatter systems are ideal for first response and restoring emergency communications, major command centers, mobile command posts, offshore communication links, primary communications infrastructure and other mobile and fixed uses.

Evolution of Troposcatter

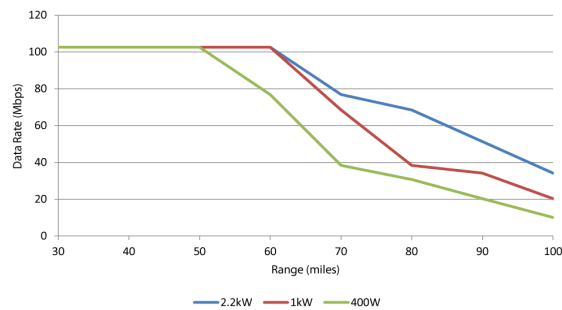
Raytheon has a legacy of designing and producing the only mobile troposcatter system that has been successfully used by all the U.S. armed services for the last 25 years. Over 700 AN/TRC-170 systems are in the field. In recent years, inspired by the interest to find automated lightweight alternatives to satellite communications, the

Raytheon troposcatter research and engineering team, working in collaboration with the engineering teams of our key partners, has developed a next-generation troposcatter HC-BLOS product line that has been thoroughly tested under a variety of field conditions.

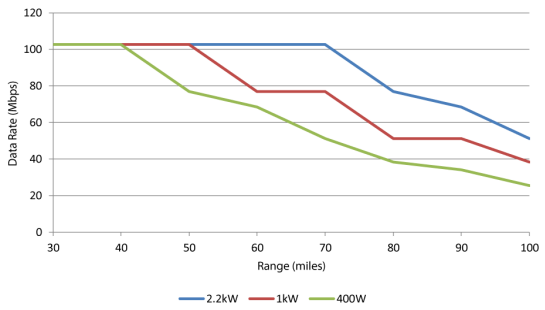


Raytheon HC-BLOS Family Range Performance

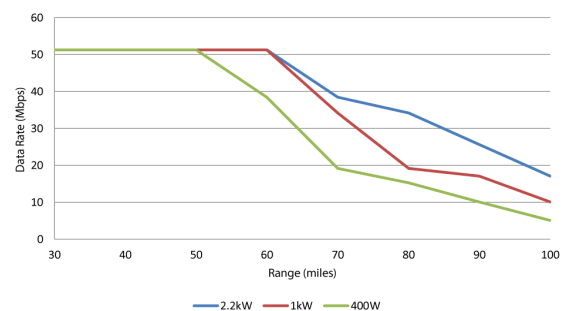
Ku Band, 2.4 Meter Antenna, Temperate Climate (90%), Smooth Earth, Two Antenna Links



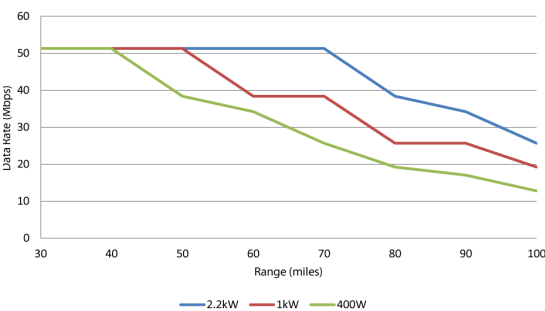
C Band, 2.4 Meter Antenna, Temperate Climate (90%), Smooth Earth, Two Antenna Links



Ku Band, 2.4 Meter Antenna, Temperate Climate (90%), Smooth Earth, On Antenna Link



C Band, 2.4 Meter Antenna, Temperate Climate (90%), Smooth Earth, One Antenna Link



Industry-First Technology

DART-T

With components configured to meet mobility needs, communication links are established in minutes. The system is self-aligning; no troposcatter-unique skills are required.

Quad angle/frequency diversity with a single antenna

Provides the high order of diversity needed for very low bit error rate in a small footprint terminal.

Higher data rates

Next-generation signal processing with higher data rates handles anomalous propagation with reduced errors.

Dual-band operation

C-band or Ku-band operation is field-adaptable to optimize spectrum utilization and interoperability.

Multimode operational option

Choice of operational mode (Tri-Band SATCOM or Tropo) is field selectable in accordance with mission requirements.

Lower weight and power usage

The super-efficient 1.25 kW high-power amplifier (HPA) technology minimizes weight and power usage, while achieving ranges in excess of 160 km during Ku-band operation. C-band operation with the 2.25 kW HPA achieves ranges greater than 230 km. Powerful waveform processing by the new RTM-100 troposcatter modem allows smaller transmitter size and lower radio frequency (RF) power output, resulting in reduced prime power input requirements.

Proven commercial off-the-shelf components

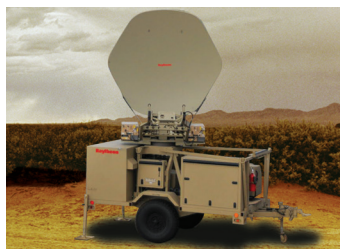
Our DART-T family of troposcatter communication terminals utilizes the highest performing troposcatter modem on the market today. State-of-the-art super-linear HPAs provide the highest price-to-performance ratio available. Our antennas are field-proven, dual-mode (SATCOM/Tropo) systems used on the successful Joint Network Node/Satellite Transportable Terminal (JNN/STT) family of SATCOM terminals among many others.

DART-T is Available in Multiple Configurations

The DART-T terminal is available in three variants: vehicle mountable pallet, towable trailer with built-in generator and case-based fly-away. These DART-T configurations are C-130 transportable. Comparable terminal systems have a large footprint and require up to six transport vehicles for equivalent capabilities.



Vehicle-Mounted



Trailer-Mounted



Trailer-Equipment Bay

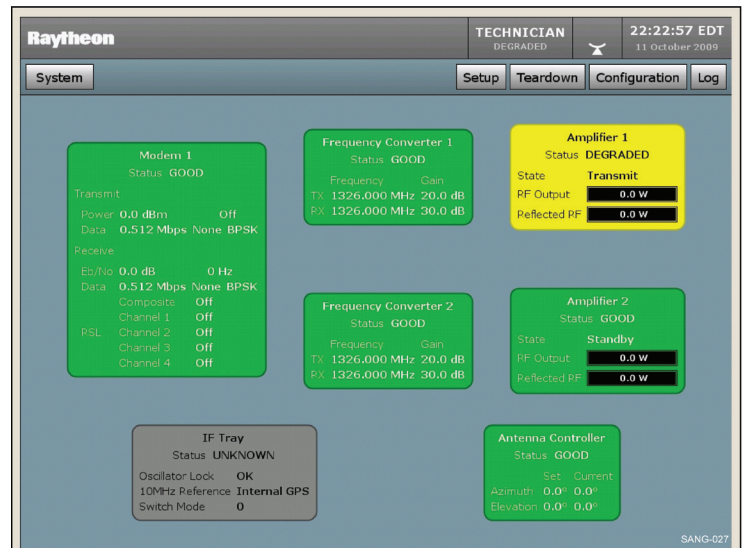


Fly-Away

HC-BLOS Operator Interface

Workflow wizards are used to guide the non-technical operator through the setup of a troposcatter link in the shortest amount of time. Preplanned missions can be loaded as presets from which an operator selects and enables. These attributes make the HC-BLOS family of systems easy to use, reducing the probability of operator error.

- Automatic link set-up
- Automatic bandwidth adjustment
- Automated workflow processes
- Automatic failure detection with color-coded alerts
- Common look-and-feel across HC-BLOS product line



HC-BLOS Family of Products



Operating Mode	Point to Point
Power Consumption	<15 kW
Antenna Size	2.4 meter (8 feet)
Data Rate	Up to 100 Mbps
Range	>200 km at 1 Mbps
Network Connection	10/100 Ethernet or RS530/422
Operational Temperature	-13°C to 55°C

For further information contact
iispr@raytheon.com

Raytheon Company
Intelligence, Information and Services
3 Van De Graaff Drive
Burlington MA 01803

www.raytheon.com