FIRE SCOUT
Tactical Common Data Link

CUBIC

Robust ISR Communications for the RQ/MQ-8B Fire Scout

Cubic is a proud provider of the Tactical Common Data Link (TCDL) for the U.S. Navy's RQ/MQ-8B Fire Scout Vertical Takeoff and Landing Unmanned Air Vehicle (VTUAV).

The data link – consisting of air data terminals and ground data terminals – serves as the wireless connection between the Fire Scout and control stations aboard Littoral Combat Ships.

Cubic is delivering the TCDL under a contract from Northrop Grumman, which is providing the Fire Scout unmanned aircraft system to the Naval Air Systems Command.

The Fire Scout is the first of its kind within the U.S. Navy, and will be the first DoD unmanned vehicle to incorporate Cubic's TCDL. Deliveries of the MQ-8B Fire Scouts are expected to be completed by the end of 2008.

The Fire Scout's operational requirements include real-time video imagery collection, intelligence gathering, communications-relay capability, precision targeting and battle damage assessment from the Littoral Combat Ship.

The Fire Scout can take off and land on any aviation-capable ship. The VTUAV possesses the capability to watch for threats within 150 nautical miles of the ground control station, and accurately designate a target and direct weapons to it.

In addition to providing ISR and targeting functions, Fire Scout can deliver supplies to troops behind enemy lines without endangering the lives of manned helicopter crews.

Cubic's high-speed TCDL will assist in Fire Scout's reconnaissance, surveillance and targeting missions by providing a large amount of bandwidth – up to 10.71 Mbps – to transfer data from the Fire Scout's video, laser and infrared targeting sensors, as well as its laser designator/ range finder.

The data links can receive large amounts of data from diverse sensors over a wide spectrum. Using high-speed Digital Signal Processing techniques, the TCDL then encrypts, multiplexes, encodes, transmits, receives, demultiplexes and routes the data to shipboard workstations for timely exploitation.

Cubic's TCDL, which offers high-speed, versatility and jam-resistance, has received the Department of Defense's Joint Interoperability Test Command specification compliance verification.

NORTHROP GRUMMAN

Air Data Terminal (ADT)
Key Features

- Ku-band CDL Transceiver
- 200 kbps to 10.71 Mbps
- CDL Compliant
- Internal Encryption
- Omni and Directional Antennas
- Ethernet & Analog Interface (Standard, Nonproprietary)
- Video Encoding (MPEG-2)
- Interoperable with CDL Terminals from All Vendors

Performance Characteristics

Frequency	Ku-band (transmit & receive) Standard CDL Waveform Compliant
Data Rate	200 kbps – 10.71 Mbps
Transmit Power	10 Watts
Transmit Mode	Full-duplex
Interfaces	RS-170 Analog Video (input to ADT) Ethernet Analog Audio (input & output)
Video	Analog NTSC
Encryption	Type 1

Physical Characteristics

Transceiver

Size	22.5 in. x 14.25 in. x 8.5 in.
Weight	37.8 lbs.
Power Consumption	260 W Maximum
Primary Power	28 Vdc
Vibration & Shock	MIL-STD-810F
EMI/EMC	MIL-STD-461E
Temperature	-40° C to +55° C

Directional Antenna

Size	8.0 in. Dia. x 9 in. High (Excluding connectors)
Weight	7.0 lbs.
Power Consumption	10 W Maximum
Primary Power	28 Vdc
Vibration & Shock	MIL-STD-810F
EMI/EMC	MIL-STD-461E
Temperature	-40° C to +55° C

Omni Antenna

Weight	7.0 lbs.
Weight	0.33 lbs.
Power Consumption	0 W

Ground Data Terminal (GDT)
Key Features

- Ku-band CDL Transceiver
- 200 kbps to 10.71 Mbps
- CDL Compliant
- Internal Encryption
- Omni and Directional Antennas
- Ethernet & Analog Interface (Standard, Nonproprietary)
- Video Decoding (MPEG-2)
- Interoperable with CDL Terminals from All Vendors
- Optional Ruggedized Laptop Display and Control Software

Performance Characteristics

Frequency	Ku-band (transmit & receive) Standard CDL Waveform Compliant
Data Rate	200 kbps – 10.71 Mbps
Transmit Power	10 Watts
Antenna Gain	39.6 dBi (Directional), 0 dBi (Omni)
Transmit Mode	Full-duplex
Interfaces	RS-170 analog video (Output from GDT) Ethernet Analog Audio (input & output)
Video	Analog NTSC Output
Encryption	Type 1

Physical Characteristics

Remote Antenna

Size	60 in. High x 56 in. Diameter Tripod Foot Circle
Weight	147 lbs.

Modem Assembly

Size	22.5 in. x 23.5 in. x 6 in.
Weight	29.7 lbs.
Power Consumption	35 W (Supplied by Power Supply)
Power	28 Vdc
Vibration & Shock	MIL-STD-810F
EMI/EMC	MIL-STD-461E
Temperature	-40° C to +55° C