File No.: 0318-EX-ST-2007

EXHIBIT 1

Submisstion Date: **June 14, 2007-06-14**
Confirmation Number: **EL510137**

1. Description of Transmitting Equipment

The RF equipment to be operated for the demonstrations under this STA consists of an Airborne Data Link Terminal (ADLT) (L-3 Communications Model WB, Part Number 60046432) and a compatible Ground Data Link Terminal (GDLT) (L-3 Communications Model TIGDL II, Part Number 60046431). The ADLT is designed to operate on military tactical aircraft. The GDLT is designed to be towed behind military ground vehicles and operate with ground data processing units. These operate together to form a full duplex Ku-band digital data link, providing wide-band high rate data transmission from the ADLT to the GDLT.

ADLT Equipment

The Airborne Data Link Terminal (ADLT) consists of the following RF equipment:
a) 9.5" parabolic antenna, 2-axis steerable (L3 Comm P/N 60030200); 7.5 degree 3dB Beam Width, 24.6 dBic Gain.

b) RF Electronics Assembly, 50W Ku-Band power amplifier & diplexer (L3 Comm P/N 60046443);

c) Airborne Modem Assembly, US CDL-Standard Modulator/Demodulator (L3 Comm P/N 60046444).

d) RF Switch Assembly (L3 Comm P/N 64007083)

e) Ku-Band Horn Antenna (for test purposes only): A/R Microwave Instrumentation, Inc, Model AT4004 Antenna (or equivalent); 30 degree 3dB Beam Width; 15 dBi Gain.

Test equipment used to interconnect the ADLT and its antennas includes the following:

Item	Manufacturer	Model/PN
175 W Load	NARDA Microwave East	369BNM (or equivalent)
20 dB Coupler	NARDA Microwave East	4196-20 (or equivalent)
10 dB Fixed Attenuator	NARDA Microwave East	4776-10 (or equivalent)
20 dB Fixed Attenuator	NARDA Microwave East	4776-20 (or equivalent)
30 dB Fixed Attenuator	NARDA Microwave East	4776-30 (or equivalent)

GDLT Equipment

The Ground Data Link Terminal (GDLT) equipment, operating in Ku-band only, is described in Appendix A and consists of the following RF equipment:

a) Tracking Antenna (TAG) Group Assembly (L3 Comm P/N 60046474), including 72" Parabolic Antenna; 1.7 degree 3dB Beam Width; 44 dBi Gain;
b) Tracking Antenna Group Electronics (TAGE) Assembly (L3 Comm P/N 60046442);
c) Ku-Band RF Electronics Assembly (RFE) (L3 Comm P/N 8111123); 5.0 W maximum output;
d) Control Processing Group (CPG) (L3 Comm P/N 60046438)

Item	Manufacturer	Model/PN
20W Load	NARDA Microwave East	374BNM (or equivalent)
20 dB Coupler	NARDA Microwave East	4196-20 (or equivalent)
10 dB Fixed Attenuator	NARDA Microwave East	4776-10 (or equivalent)
20 dB Fixed Attenuator	NARDA Microwave East	4776-20 (or equivalent)
30 dB Fixed Attenuator	NARDA Microwave East	4776-30 (or equivalent)

For the demonstrations, the outputs of both ADLT and GDLT transmitters will be attenuated by at least 30 to 50dB each using the equipment listed above, depending on location, external or internal. This will insure that ERPs are maintained below 400mW for internal tests and below 50W for the external tests. Additional attenuation, up to 30dB for each transmitter, may be added to simulate free-space loss over the full system operating distance.

2. Location, Installation and Operation of Transmitting Equipment

In the STA, three locations and 6 Antenna Stations are defined. The first location is an internal facility, and includes the 3 described transmitting antennas at Stations 1, 2 and 3. The second and third locations are external to the facility. Location 2 includes the same 2 ADLT antennas at Stations 4 and 5, as described at Location 1, Stations 1 and 2. The third location, Antenna Station 6, is for the same GDLT antenna as defined at Location1, Station 3.

2.1. First Location, Antenna Stations 1, 2 and 3 – Inside the Facility

The first location (42:35:30N, 71:19:17W) is within a fully enclosed laboratory of the Goodrich Surveillance and Reconnaissance Systems (SRS) facility at 5 Omni Way, Chelmsford, MA, 01824-4142. This part of the facility is a high-bay single-story integration and test laboratory of concrete and steel construction, with floor level approximately 1m above ground level. The laboratory internal dimensions are approximately 25m x 25m x 6m ceiling height. The ADLT and GDLT equipment will be set up in the SW corner of the laboratory. The GDLT TAG Trailer and 72" Parabolic Antenna (Antenna 3) will be installed in the NE corner of the laboratory, approximately 10 to 15 m away from the ADLT equipment.

The operation described for this location will not be conducted continuously. Operation will be conducted a maximum of three or four times during the requested approval period, for several days to a week at most on each occasion, and for no more than 8 hours cumulative transmission per day. This operation will be conducted as part of preparation for set-up and operation of the same equipment outside of the facility, at higher ERPs, as described for the Second and Third Antenna Locations, under section 2.2, below.

Fig. 1 provides a general schematic for interconnection of the RF equipment at this location. Antenna 1 and Antenna 2 (Antenna Stations 1 and 2) will both be driven by the ADLT AMA and RFE through the RF Switch as shown in the schematic. Antenna 1, the ADLT 9.5" Parabolic Antenna, will be fixed in position. Antenna 2, the 'mobile' ADLT 15dBi Horn antenna, will be fed through a long length of coax cable, so that it can be moved around within the room to test the TAG Antenna's acquisition and tracking functionality.

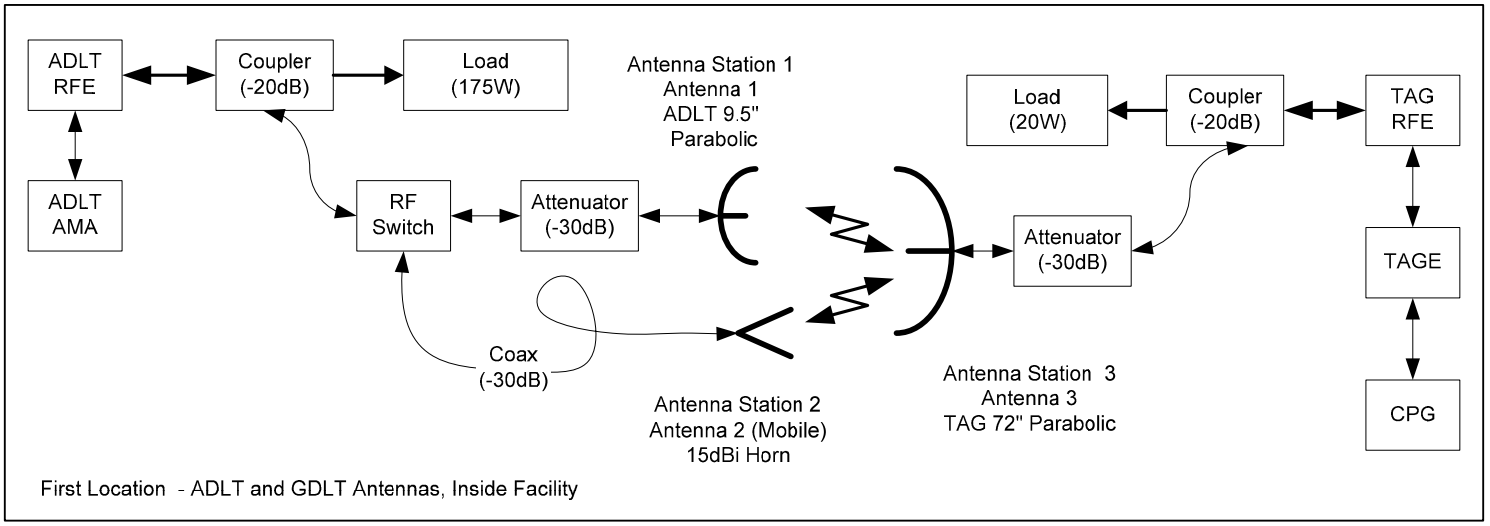

Figure 1 - First Location, Inside Facility: RF Schematic, Antenna Stations 1, 2 and 3

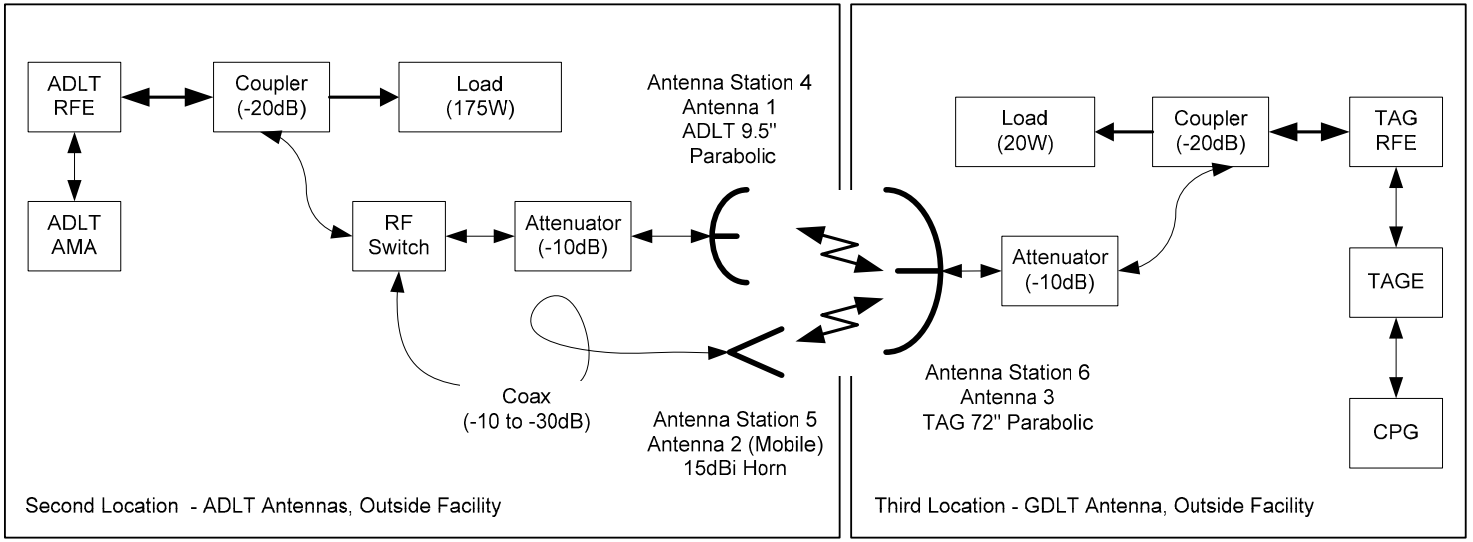

Figure 2 – Second and Third Locations, Outside Facility: RF Schematic, Antenna Stations 4, 5 and 6

ADLT Output Power

(Fig. 1) The ADLT RFE RF amplifier supplies power to the Antennas at Stations 1 and 2.

(Fig. 1) The ADLT RFE RF amplifier is certified for a maximum output power of 70 Watt CW (+18.45 dBW) circularly polarized in the Ku-Band, at 14.405 to 14.825 GHz. The output of the ADLT RFE is connected to a 175 Watt capacity fixed load through a directional coupler. The coupler feeds -20 dB of the RFE output to a 2-position RF Switch.

First Location, Station 1, Antenna 1 - ERP

(Fig. 1) The ADLT 9.5" Parabolic Antenna is connected to one port of the RF Switch with a -30dB fixed attenuator. The total attenuation of RFE output through the switch and attenuator to the 9.5" Parabolic Antenna is at least -50 dB. The gain of this antenna is +24.6 dBic. Additional losses in the connections, including coupler and RF switch losses, are not included. The actual output power of the ADLT RFE will be between the minimum specified of 35W (+15.5dBW) and 50 W (+17.0 dBW). The resulting maximum ERP is 120 mW.

First Location, Station 2, Antenna 2 (Mobile) - ERP

(Fig. 1) The 15dBi Horn Antenna is connected to the other output port of the RF Switch with 20m of coax cable having attenuation at 14.6 GHz of at least -30dB. This antenna will be moved around within the room, on a maximum radius of 20m. The total attenuation of RFE output to the 15dBi Horn Antenna is at least -50 dB. The maximum gain of this antenna is +15dBi in the 14.4 to 14.9 GHz band. Other losses in the connections, including coupler and RF switch losses, are not included. The actual output power of the ADLT RFE will be between the minimum specified of 35W (+15.5dBW) and 50 W (+17.0 dBW). The resulting maximum ERP is 7 mW.

GDLT Output Power

(Fig. 1) The GDLT's RFE RF amplifier outputs a maximum rated power of 5 Watt CW (7.0 dBW) circularly polarized in the Ku-Band, at 15.15 to 15.35 GHz. The output of the GDLT RFE is connected to a 20 Watt capacity fixed load through a directional coupler.

First Location, Station 3, Antenna 3 - ERP

(Fig. 1) The directional coupler feeds -20 dB of the RFE output through a -30 dB attenuator to the GDLT TAG 72" Parabolic Antenna. The total attenuation of GDLT RFE output to the 72" Parabolic Antenna is at least -50 dB.

The maximum gain of this antenna is +44dBi in the 15.15 to 15.35 GHz band. Losses in the connections, including coupler losses, are not included. The actual output power of the GDLT RFE will be between the maximum rated and minimum specified of 2 W (+3.0 dBW). The resulting maximum ERP is 380 mW.

2.2. Second and Third Locations – Outside the Facility

Figure 3 shows an aerial view of the Goodrich Surveillance and Reconnaissance Systems (SRS) facility at 5 Omni Way, Chelmsford, MA, 01824-4142. The Second Antenna Location (42:35:31N, 71:19:17W), corresponding with Antenna Stations 4 and

5, is marked ADLT Antenna. The Third Antenna Location (42:35:31N, 71:19:21W), corresponding with Antenna Station 6, is marked GDLT Antenna.

Figure 3 – Aerial View of Second (ADLT Antennas) and Third (GDLT Antenna) Locations

A red line shows the direction (169 deg CW from N) from facility site to the nearest aircraft landing field, Hanscom Field, Lexington, MA. Distance to nearest runway point is ~ 13.2 km.

The test site is surrounded from by 2-story commercial industrial buildings at ~200 to 300m distance, and by 60+m elevation hills, topped by trees and a water tower, within 2km.

A green line indicates the line-of-sight path between the ADLT Antenna position, mounted on or near the NW side of the Goodrich building, and the GDLT Antenna position, mounted on the TIGDL II trailer in the facility's NW parking lot. The path length between the antennas at the GDLT and ADLT positions is up to 90 m.

The operation described for these locations will be conducted simultaneously, but not continuously. Operation will be conducted a maximum of two or three times during the requested approval period, for several days to a week at most on each occasion, and typically for less than 4 hours cumulative transmission per day.

The nominal path direction from GDLT to ADLT Antenna positions is approximately 108 degrees east (clockwise) of N (in azimuth), and approximately level (0 degrees) in the vertical plane to within ±1 degree of horizontal (elevation).

During operation, the GDLT antenna pedestal will be driven to move the beam through approximately ± 5 degrees in elevation and ± 30 degrees in azimuth about the nominal path direction, to test its pointing, acquisition and tracking functions.

The ADLT 9.5" Parabolic Antenna will be mounted on a fixed platform approximately 2m above ground level with its beam pointing towards the GDLT Antenna, at 288 ± 10 degrees clockwise from North and approximately level (0 degrees ± 5 degrees) in the vertical plane. The 'mobile' ADLT 15 dBi Horn antenna will be mounted on a tripod approximately 2m above ground level. It will be fed through coax providing at least -10dB attenuation, and will be traversed primarily East and West up to 50 meters from the marked ADLT position, while pointing 288 ± 30 degrees clockwise from N, and approximately level (0 degrees ±10 degrees), toward the GDLT Antenna position.

Fig. 4 shows a scaled side elevation of the path between GDLT and ADLT antenna positions. The main lobe profiles are shown for the ADLT 9.5" Parabolic Antenna and for the GDLT 72" Parabolic Antenna. The Antenna Beam Widths and Maximum Height above Ground (to tip of antenna) are given in the table below.

Antenna	Maximum Height Above Ground, meters	3dB Beam Width, degrees
GDLT 72" Parabolic Antenna	3.6	1.7
ADLT 9.5" Parabolic Antenna	3.0	7.5
ADLT 15dBi Horn Antenna	3.0	30

Side lobes of the parabolic antennas are more than -17dB lower than the main lobes.

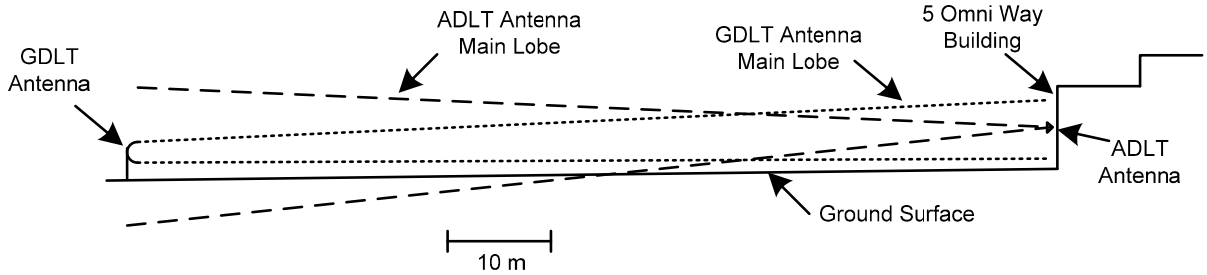

Figure 4 – Side Elevation of GDLT/ADLT Path and Parabolic Antenna Main Lobe Profiles.

ADLT Output Power

(Fig. 2) The ADLT RFE RF amplifier supplies power to the Antennas at Stations 4 and 5.

(Fig. 2) The ADLT RFE RF amplifier is certified for a maximum output power of 70 Watt CW (+18.45 dBW) circularly polarized in the Ku-Band, at 14.405 to 14.825 GHz. The output of the ADLT RFE is connected to a 175 Watt capacity fixed load through a directional coupler. The coupler feeds -20 dB of the RFE output to a 2-position RF Switch.

Second Location, Station 4, Antenna 1 - ERP

(Fig. 2) The ADLT 9.5" Parabolic Antenna is connected to one port of the RF Switch with a -10dB fixed attenuator. The total attenuation of RFE output through the switch and attenuator to the 9.5" Parabolic Antenna is at least -30 dB. The gain of this antenna is +24.6 dBic. Additional losses in the connections, including coupler and RF switch losses, are not included. The actual output power of the ADLT RFE will be between the minimum specified of 35W (+15.5dBW) and 50 W (+17.0 dBW). The resulting maximum ERP is 12.2 W.

Second Location, Station 5, Antenna 2 (Mobile) - ERP

(Fig. 2) The 15dBi Horn Antenna is connected to the other output port of the RF Switch with various lengths of coax cable up to 50m, providing an attenuation at 14.6 GHz of at least -10dB. This antenna will be mounted on a tripod and moved up to 50m east to west along the NW side of the facility from the ADLT position. The total attenuation of RFE output to the 15dBi Horn Antenna is at least -30 dB. The maximum gain of this antenna is +15dBi in the 14.4 to 14.9 GHz band. Other losses in the connections, including coupler and RF switch losses, are not included. The actual output power of the ADLT RFE will be between the minimum specified of 35W (+15.5dBW) and 50 W (+17.0 dBW). The resulting maximum ERP is 670mW.

GDLT Output Power

(Fig. 2) The GDLT's RFE RF amplifier outputs a maximum rated power of 5 Watt CW (7.0 dBW) circularly polarized in the Ku-Band, at 15.15 to 15.35 GHz. The output of the GDLT RFE is connected to a 20 Watt capacity fixed load through a directional coupler.

Third Location, Station 6, Antenna 3 - ERP

(Fig. 2) The directional coupler feeds -20 dB of the RFE output through a -10 dB attenuator to the GDLT TAG 72" Parabolic Antenna. The total attenuation of GDLT RFE output to the 72" Parabolic Antenna is at least -30 dB.

The maximum gain of this antenna is +44dBi in the 15.15 to 15.35 GHz band. Losses in the connections, including coupler losses, are not included. The actual output power of the GDLT RFE will be between the maximum rated and minimum specified of 2 W (+3.0 dBW). The resulting maximum ERP is 37.9 W.

EXHIBIT 1: Appendix A – Additional Equipment Description: TIGDL II GDLT

L3 communications
Communication Systems-West

Tactical Interoperable Ground Data Link (TIGDL II)

Data Link Products

TIGDL-II is a transportable tactical data link surface terminal designed to support military operations by providing a full duplex communication system surface terminal for communicating with compliant US DoD Common Data Link (CDL)/NATO STANAG 7085 airborne configured systems. This communication system consists of Command Link (CL) data rates of 200 kb/s, 2 Mb/s, or 10.71 Mb and Return Link (RL) data rates of 274.176 Mb/s, 137.088 Mb/s, or 10.71 Mb/s being transmitted and received at X-Band or Ku Band RF frequencies. TIGDL meets its performance requirements when operating with an airborne platform at altitudes up to 70,000 ft., ranges up to 245 Nmi, and at surface antenna elevation angles of 1 degree or higher.

PRODUCT DESCRIPTION

TIGDL-II, one of L-3 Com's Next Generation CDL Surface terminals, is designed to be more scalable than previous generation surface terminals with improved cost effectiveness. TIGDL-II scalability and cost effectiveness is achieved through the utilization of Commercial-Off-The Shelf (COTS) components and standard architectures such as VME/VXI, Legacy interfaces and Asynchronous Transfer Mode (ATM) interfaces. TIGDL-II provides flexibility and scalability through its modular design to add and/or delete functions depending on user requirements and constraints. The use of standard COTS architecture also provides the advantage of continuing development without costly investment. TIGDL-II consists of three functional hardware/software grouping: the Control Processing Group Electronics (CPGE), the Tracking Antenna Group Electronics (TAGE), and the Power Distribution/Pedestal Control Assembly (PD/PCA). TIGDL interfaces to data link users via a COTS CDL "legacy" interface and/or a CDL standard ATM fiber optic interface compliant with the Common Image Ground Station (CIG/SS) and the Common Imagery Processor (CIP). TIGDL-II ATM interface can convert legacy airborne data to a CDL ATM network interface. A Global Positioning System/Satellite (GPS) receiver receives latitude, longitude, and altitude. TIGDL's antenna can be automatically raised and lowered via a switch on the trailer.

KEY FEATURES AND BENEFITS

- High Bandwidth Digital Data Link
- Complies with CDL Class I Spec.
- Low cost COTS design
- Dual BAnd (X-band and Ku-band)
- GPS
- C-130/HMMWV Transportable
- Complies with STANAG 7085 Spec.
- Upgradeable in the Field
- CDL Legacy Interfaces
- CDL Network Interfaces

DFOISR Public Release Approval 98-S-3599

640 North 2200 West
P.O. Box 16850
Salt Lake City, UT 84116
Tel: 801-594-2242
FAX: 801-594-3003
www.L-3com.com/csw

SPECIFICATIONS

TIGDL II

PHYSICAL CHARACTERISTICS

	TAG	CPG
Size	166"L x 85"W x (142"H Deployed) (102"H Transport Mode)	24"L x 19"W x 21"H
Weight	4200 lbs	100 lbs
Power	4400 Watts 120/280V 50/60 Hz 3ø or (selectable) 240/416 V 50 Hz3ø	490 Watts 120V 50/60 Hz 1ø or (selectable) 219/ 240 V 50Hz 1ø

PERFORMANCE CHARACTERISTICS

	TIGDL II
Command Link	
Data Rates	200 kb/s, 2Mb/s, 10.71Mb/s
Modulation	SS'BPSK SS'BPSK OQPSK
Power Amp	5 Watt SSPA
Return Link	
Data Rates	10.71, 137, 274 Mb/s
Modulation	Offset QPSK (OQPSK)
Antenna	
Size	6 foot parabolic reflector
Frequency	X-band and Ku-band
Azimuth capability	Continuous , 360° azimuth
Slew rate	20°/sec (30°/sec optional)
Synchro Accuracy	16 bit (24 bit optional)
Operational wind	40 mph (70 mph optional)
Remoting	300 meters with standard cable (Up to 10Km with optional cable)
Other	
Encyption	Optional (Bypass or Embedded)
Dual Band Operation	Yes
Frequency Tuning	CDL 5 MHz steps
BIT	To module level
Link Audio	Yes
Maintenance Audio	Yes
Remote Spectrum Analyzer	Yes
ATM User I/F	Yes
CDL User I/F	Yes
AN/AIC-26 (Airborne Intercommunication System)	Optional

TAG & CPG FEATURES

- The TAG includes, a trailer-mounted 6 foot diameter parabolic antenna with tracker, antenna pedestal, the TAGE, the PD/PCA, and RF/IF electronics. The trailer is capable of being towed by a High Mobility Muti-Wheeled Vehicle (HMMWV) or similar vehicle.
- The CPG consists of a notebook computer and a VME chassis of digital electronics (CPGE). The CPG is mounted in a standard 19" rack that may reside in a shelter mounted on a HMMWV.
- The TAG and CPG are connected via a fiber optic cable that provides for easy connection and remoting of the antenna as desired.

TIGDL ENVIRONMENT

	TAG	CPG
Temperature (Operating)	- 40 to +49°C	+0 to +40°C
Temperature (Storage)	- 40 to +63°C	- 40 to +63°C
Natural Environment	4"/hour rain, ice, & snow conditions, Wind - 40 mph Blowing dust & sand Salt fog, Operating Slope - Up to 10 degrees	Shelter
Altitude (Operating)	10,000 ft max	10,000 ft max
Altitude (Storage)	40,000 ft max	40,000 ft max
Roadability	MIL-M-8090F, type III mobility	In S-788/G Shelter on HMMWV
Transportability	C-130 or similar aircraft Helicopter Lift	

Data Link Products

For further information on TIGDL II contact:

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communications
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L-3CSW 03/05