

QUADBAND MODEM ASSEMBLY- (QMAi)

Ruggedized Airborne Next-Generation Data Link

Airborne, Ruggedized Next Generation Data Link L3Harris' high-performance, environmentally rugged, wideband data link provides users with maximum flexibility and performance.

PRODUCT DESCRIPTION

The QMAi Line-of-Sight (LOS) Modem is an airborne, ruggedized software defined modem capable of operating in harsh military environments. Features compact ¼ Airborne Transport Rack (ATR) chassis. The modem supports full duplex operation over L, S, C, and Ku frequency bands using Tactical, VNW, IW, STD-CDL, and BE-CDL waveform options at data rates up to 44.73Mbps. It seamlessly interfaces with various external Radio Frequency Equipment (RFE)s and antenna equipment. The modem utilizes a Simple Network Management Protocol version 3 (SNMPv3) control interface for mission operation, or a web-based GUI control interface for maintenance. The QMAi LOS Modem, with its embedded Compact Multi-band Data Link (CMDL™ 2i), is based on a common product architecture. This architecture commonality assures interoperability between CMDL/CMDL 2 users and other L3Harris radio variants.



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Built for the Harshest Environments

KEY FEATURES

- > Multi-band transmission and reception
 - Full-duplex - L-, S-, C-, and Ku-Band
- > Secure digital communications via AES encryption and secure keying
- > CDL compliant
 - STD-CDL Rev H2/STANAG 7085
 - BE-CDL Rev C
 - Capstone Rev A
- > Command and control interface
- > Web browser GUI - SNMPv3 - KLV

SPECIFICATIONS

DATA RATES

Standard Waveforms

- > STD-CDL Rev H.2: 200 kbps to 45 Mbps
- > Bandwidth Efficient (BE-CDL) Rev C:
 - Modes 1 to 15: 512 kbps to 45 Mbps
 - Modes 101 to 105: 200 kbps to 45 Mbps

Optional Waveforms

- > Tactical: 1.6 Mbps to 6.4 Mbps
- > International waveform: 0.75, 1.5, 3, 6, 12, 24, and 42 Mbps
- > VNW: 50 kbps to 5 Mbps

General

- > Host control interface: SNMPv3, KLV, Web GUI
- > Antenna control:
 - Interface: RS-485
- > RFE control interface:
 - Interface: RS-485
 - Protocol: URP
- > MTBF (217F with VITA 51.1): > 10,000 Hrs at 25 °C
- > Part number: 1000251227

SWAP PERFORMANCE

Dimensions¹

- > Without connectors:
 - 12.52" (L) x 2.25" (W) x 7.62" (H)
- > With connectors:
 - 13.77" (L) x 2.25" (W) x 7.62" (H)

Power

- > Input: 18 to 32 VDC²
 - Typ. (W): 36
 - Max. (W): 42

Weight

- > 10 lbs.

ENVIRONMENTAL (MIL-STD-810H)

- > Altitude:
 - Up to 50,000 ft (Op)
 - Up to 65,000 ft (Non-Op)
- > Temperature:
 - -55 °C to 85 °C (Non-Op)
 - -55 °C to 71 °C (Op) with cold start at -40 °C
- > Humidity: 10 x 24 hr cycles; 95% RH non-condensing
- > Shock:
 - 20g 11ms Sawtooth (Op)
 - Bench handling (Non-Op)
- > Vibration:
 - Op: Category 13 (fixed wing - propeller) 4.62 gRMS
 - Non-Op: Procedure I (general vibration) 1.43 gRMS
- > Other ENV: fungus, rain, dust, salt fog, explosive atmosphere

EMI REQUIREMENTS (MIL-STD-461G)

- > CE101, CE102, CS101, CS114, CS115, CS116, CS118, RE101, RE102, RS101, RS103
- > Lightning: Waveform 5A; Level 3; pin inject

EXTERNAL INTERFACES

PORT	DESCRIPTION	CONNECTOR
J1 Power	DC Power Input	D38999 (Shell 9, pins)
J2 User I/O (Red)	<ul style="list-style-type: none"> • User Ethernet 1 • User Ethernet 2 • Remote shutdown • Restore factory defaults 	D38999 (Shell 15, sockets)
J3 Ant & RFE I/O (Black)	<ul style="list-style-type: none"> • Antenna serial control • RFE serial control • RF switch control 	D38999 (Shell 13, Sockets)
J4 Ku Tx	Ku-Band transmit	SMA (jack)
J5 Ku Rx	Ku-Band receive	SMA (jack)
J6 L/S Tx	L/S-Band transmit	SMA (jack)
J7 C Tx	C-Band transmit	SMA (jack)
J8 L/S Rx	L/S-Band receive	SMA (jack)
J9 C Rx	C-Band receive	SMA (jack)
E1	Chassis ground	#10-32 threaded insert

RF CHARACTERISTICS

BAND	FL (MHz) ³	RL (MHz) ³	STEP SIZE (KHz) ⁴	PWR OUT (dBm) (MIN TO LIN)	PWR IN (dBm) ⁵
Ku	15150 to 15350	14400 to 14830	1	-20 to +10	-70 to 0
C	4400 to 4990	5250 to 5850	1	-20 to +10	-70 to +20
S	2025 to 2110	2200 to 2500	1	-20 to +10	-70 to +20
L	950 to 2025		1	-20 to +10	-70 to +20

1. Represents 1/4 ATR Short

2. MIL-STD-704F; Max In-Rush: 10A at 10ms

3. Forward Link and Return Link frequency ranges are floppable

4. Listed steps sizes represent the hardware capability; selected waveform may restrict the step size

5. Represents the minimum required receive range. Lower range sensitivities vary based on waveform

QMAi LOS Modem Assembly

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