

QUADBAND MODEM ASSEMBLY– ENCRYPTED (QMAe)

Ruggedized Airborne Next Generation Data Link

L3Harris' high-performance, environmentally rugged, wideband data link provides users with maximum flexibility and performance.

PRODUCT DESCRIPTION

The QMAe Line of Sight (LOS) Modem is an airborne, ruggedized software defined modem capable of operating in harsh military environments. It consists of a National Security Agency (NSA) certified Communications Security Module (CSM) and supporting interfacing circuitry packaged in a 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 Bandwidth Efficient (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 and a web-based GUI/KLV control interface for maintenance.

The QMAe LOS Modem, with its embedded Compact Multi-band Data Link (CMDL™ 2e), is based on a common product architecture. This architecture commonality assures interoperability between CMDL/CMDL 2 users and other L3Harris radio variants.



Built for the Harshest
Environments

KEY FEATURES

- > Multi-band transmission and reception
 - Full-duplex
 - L-, S-, C-, and Ku-Band
- > Secure digital communications
 - Type 1 Encryption
 - USG and coalition cryptographic interoperability
 - 256 bit AES
- > CDL compliant
 - STD-CDL Rev H2/STANAG 7085
 - BE-CDL Rev C
 - Capstone Rev A
- > NSA Type 1 certified (in process)
 - Interoperability with legacy systems
- > Command and control interface
 - Web browser GUI/KLV
 - SNMPv3

SPECIFICATIONS

DATA RATES

Standard Waveforms

- > STD-CDL Rev H.2: 200 kbps to 45 Mbps
- > 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

Security

- > Integrated encryption: SCM 100

General

- > Host control interface: SNMPv3, KLV, Web GUI
- > Antenna control:
 - Interface: RS-485
 - Protocol: Per 8139578 (CLA)
- > RFE control interface:
 - Interface: RS-485
 - Protocol: URP
- > MTBF (217F with VITA 51.1): > 10,000 Hrs at 25 °C
- > Part number: 1000198550

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.

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 2500		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

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 • Secure module DS-101 (key entry) • Secure module zeroize • Secure module bypass • Secure module remote status LED • External battery key hold • 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

QMAe LOS Modem Assembly

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