

## 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-485Protocol: URP

> MTBF (217F with VITA 51.1): > 10,000 Hrs at 25 °C

> Part number: 1000198550

#### **SWAP PERFORMANCE**

#### Dimensions<sup>1</sup>

> 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)
 Non-Op: Procedure I (general vibration)
 4.62 gRMS
 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)	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)	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 in		

#### RF CHARACTERISTICS

BAND	FL (MHz) <sup>3</sup>	RL (MHz) <sup>3</sup>	STEP SIZE (KHz)4	PWR OUT (dBm) (MIN TO LIN)	PWR IN (dBm) <sup>5</sup>
Ku	15150 to 15350	14400 to 14830	1	-20 to +10	-70 to 0
С	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
	950 to 2500		1	-20 to +10	-70 to +20

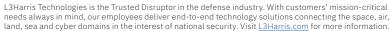
<sup>1.</sup> Represents 1/4 ATR Short

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

#### QMAe LOS Modem Assembly

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<sup>3.</sup> Forward Link and Return Link frequency ranges are floppable

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

<sup>5.</sup> Represents the minimum required receive range. Lower range sensitivities vary based on waveform