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CDL HAWKLINK AN/ARQ-59 RADIO TERMINAL SET

The standard for high-bandwidth air-to-surface communications

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The next-generation Ku-band AN/ARQ-59 airborne data link provides Command/Control (C2), sensor data transfer, datalink operation and comprehensive built-in test for high-reliability communications in mission-critical applications. Radar, acoustic, video and network interfaces support U.S. Navy fleet requirements for the MH-60R helicopter. CDL Hawklink provides interoperability with Common Data Link (CDL) terminals used by U.S. and Allied forces worldwide.

PRODUCT DESCRIPTION

The L3Harris Hawklink AN/ARQ-59 airborne terminal is a fully qualified wideband communications system tailored to the requirements of the U.S. Navy's fleet of MH-60R helicopters. It delivers real-time acoustic sonobuoy data, PPI/ISAR radar data and full-motion video to the ship to provide full situational awareness and protection of battle group assets.

The MH-60R Avionics Operational Program (AOP) provides flexible control of all sensor transfers and associated equipment, ensuring seamless integration and mission operation. Primary system control is managed by the airborne mission computer via a MIL-STD-1553 interface to the AN/ARQ-59 system using AOP commands.

Robust built-in test and high-reliability equipment enables a reduced logistics footprint and eliminates complex support equipment. Dual antennas and automatic antenna switching ensure continual connectivity to the surface data link, regardless of aircraft orientation.

The programmable waveforms of the AN/ARQ-59 enable interoperability with U.S. Navy shipboard terminals for LCS, aircraft carriers, DDG-51, CG-47 and FFG-7 class ships. Terminals can be easily configured for interoperability with several generations of CDL surface terminals deployed by the U.S. Army and U.S. Air Force, as well as with many allies and coalition countries around the globe.

Proven capability and reliability

- Supports Anti-Submarine Warfare (ASW) and Anti-Ship Surveillance and Targeting (ASST) missions
- Range of 100 nm to AN/SRQ-4 shipboard terminal
- Transmits 2 channels of full-motion video
- IP-enabled and extensible to future network-centric applications
- SAU07000 digital messaging interface enables network distribution of data from MH-60R electro-optical camera, multi-mode radar, sonar suite and electronic warfare systems to ship exploitation systems
- Shifted Return-Link CDL frequency range
- Dual antennas to provide continual connectivity regardless of aircraft orientation
- Auto-switching between fore and aft antennas provides continuous coverage given the wide range of mission profiles and maneuvers
- Drop-in retrofit for existing MH-60R – less than four hours
- Extensive built-in test avoids O-level support equipment
- No scheduled maintenance for life of system
- Growth path to multi-band/relay configuration
- Interoperable with CDL family of ground and shipboard terminals, including AN/USQ-167 Communications Data Link System (CDL-S) on aircraft carriers, Gen-2 Model-N Surface Terminal Equipment used at Maritime Operations Centers (MOCs), AN/USQ-219 on Littoral Combat Ships, and handheld portable transceivers

SPECIFICATIONS

PHYSICAL CHARACTERISTICS

> Total power consumption: < 1710 VA (115 V, 400 Hz) and < 140 W (28 VDC)

	LENGTH (IN.)	WIDTH (IN.)	HEIGHT (IN.)	WEIGHT (LB.)
MUX	22.09	10.15	8.06	40.0
EFC	22.87	15.41	7.60	36.1
Fwd RFA	20.74	12.00	4.47	23.8
Aft RFA	20.74	12.00	4.47	23.8
Fwd Antenna	13.00	13.00	12.90	13.4
Aft Antenna	13.00	13.00	12.90	13.4
Total				**150.5**

ENVIRONMENTAL:

> EMI/EMC: Qualified to MIL-STD-461E

> Temperature: -40 °C to +55 °C (operational); -40 °C to +65 °C (RF amplifier, operational)

> Altitude: 15,000 ft.

> Operational shock: RTCA/DO-160D, Section 7.0

> Rain: RTCA/DO-160D, Section 10.0, Category W

> Salt fog: RTCA/DO-160D, Section 14.0, Category S

> Sand/dust: RTCA/DO-160D, Section 12.0, Category D

> Humidity: RTCA/DO-160D, Section 6.0, Category B

> Fungus: RTCA/DO-160D, Section 13.0, Category F

> Explosive proof: RTCA/DO-160D, Section 9.0, Category E

PERFORMANCE CHARACTERISTICS:

RF

> Extended Ku-band frequency ranges:

- Forward link: 15.15 to 15.35 GHz
- Return link: 14.53 to 14.93 GHz
- Tuning: 5 MHz steps across band

Data Rate Options

> Forward link: 200 and 400 kbps; 2.0, 10.71, 21.42 and 44.73 Mbps

> Return link: 2.0, 10.71, 21.42 and 44.73 Mbps

Modulation

> BPSK: Standard CDL waveforms

> OQPSK: Standard CDL waveforms

Bit Error Rate

> 10^{-8} without encryption

Sensor Interface Options

> RS-170/NTSC color video, MPEG-2 encoding

> Full-duplex analog audio interface

> Full-duplex 10/100 Base-T Ethernet

> AN/ARR-84 analog acoustic interface

> PPI/ISAR radar interface

Other Interfaces

> MIL-STD-1553B navigation data interface

> MIL-STD-1553B command/control interface

> Flight deck hardware interface for preflight checks

> COMSEC fill interface

Encryption Options

> Type 1

> AES

AN/ARQ-59 Electronic Frequency Converter (EFC) provides switching between the fore and aft RFAs

AN/ARQ-59 Multiplexer (MUX) provides interfaces between the aircraft sensors and the data link

AN/ARQ-59 Radio Frequency Amplifier (RFA) design is interchangeable between fore or aft installations

CDL Hawklink antenna is interchangeable between fore or aft installations

CDL Hawklink AN/ARQ-59 Radio Terminal Set

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L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains.

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