

Digital Modular Radio (DMR)

Software-Defined Communication System



Four full-duplex channels

Complete VHF/UHF Line-of-Sight and HF/UHF Beyond Line-of-Sight waveform capability

Programmable Type 1 Multiple Independent Levels of Security (MILS) certification on 4 channels

Waveform and encryption algorithm upgradeability

Full qualification for U.S. Navy and U.S. Coast Guard shipboard environments

Coalition Interoperable

Foreign Military Sales (FMS) Five Eye Approved

Overview

The Digital Modular Radio (DMR), AN/USC-61(C), is the first software defined radio to become a communications system standard for the U.S. Military. The multi-channel DMR provides multiple waveforms and multi-level information security for voice and data communications from the core of the network to the tactical edge. The DMR system approach reduces SWAP-C on platforms by effectively replacing multiple legacy radio systems with over 1000 units in DoD operation.

DMR Today

Digital Modular Radios currently operate aboard U.S. Navy surface and subsurface vessels, U.S. Coast Guard, fixed-sites and other Department of Defense communication platforms using frequencies ranging from 2 MHz to 2 GHz. Certified to pass secure voice and data at Multiple Independent Levels of Security (MILS) over HF, VHF, UHF, and SATCOM channels, the DMR system was developed to the U.S. Navy's specifications and meets all the stringent environmental, EMI and performance requirements for use on U.S. Fleets and five eye countries. DMR is certified by the Joint Interoperability Test Command (JITC) to be compliant with the U.S. government's UHF SATCOM.

Next-Generation Communications Capability

Built using open architecture standards, General Dynamics' Digital Modular Radios continue to provide improved functionality and interoperability by including waveforms and advanced network connectivity, such as the Integrated Waveform and advanced network connectivity with the Mobile User Objective System (MUOS) waveforms. Additionally, system-wide software applications such as Dynamic Routing and Virtual Channel Exploitation extend channel capacity without additional hardware.

Digital Modular Radio

Benefits

- Single radio for the entire 2 MHz - 2 GHz bands
 - Lower spares cost and inventory
 - Single point of control
- Dramatically simplified shipboard communications system architecture
 - Embedded Type 1 Encryption
 - Embedded red/black baseband switching and routing
- Superior co-site performance using configurable embedded preselector filtering
- Reduced manpower requirements
 - Single point of control for entire HF/VHF/UHF/SATCOM system
 - High reliability
 - Built-In Test (BIT)
- Full logistical support in the U.S. Navy system
 - Single depot and common logistics
 - Common operations and maintenance training
 - Common manuals
 - Low life-cycle costs
 - Very low maintenance costs
- FMS approved

Technical Specifications – Communication

- Reprogrammable Waveform Capabilities
 - SATCOM – MIL-STD-188-181B, 182A, and 183A
 - SATCOM – Integrated Waveform
 - MUOS – MIL-STD-188-187
 - SINGGARS SIP/ESIP
 - SINGGARS v3.1 **
 - Havequick I/II
 - HF/UHF Link-11
 - UHF Link-4A
 - MIL-STD-188-110B and 110C HF Modem**
 - MIL-STD-188-141B HF ALE and 3G ALE**
 - VHF/UHF LOS
 - AM Civil and Military Aviation (WB/NB)
 - FM Voice and Data (WB/NB)
 - FSK/BPSK/SBPSK/QPSK/CPM
 - SATURN**
 - Others as Required*
- Reprogrammable Voice and Data Security Options
 - KY-57/58
 - KGV-10, 11
 - KYV-5 (ANDVT)
 - KY-99A
 - HAIPE
 - AES
 - TTAM
 - TSVCIS v3.1
 - Others as Required*

- Key Fill
 - DS-101 & DS-102 via PYQ-10 (SKL) devices
 - Over the Air keying for some Waveforms
- Configuring, controlling, and operating
 - Windows-based HMI can control up to 128 DMR channels
 - Single DMR can be controlled from up to 15 networked operator stations

System Characteristics

- Frequency Range:
 - 2 MHz – 2 GHz, contiguous
- Size/Weight:
 - 17.5"W x 19.25"H x 22"D (EIA-310-D Clearance) (44.45 x 48.90 x 55.9 cm)
 - 197 pounds
- Input Power:
 - 100 - 140 VAC, (47 - 63 Hz @ 10A)
- Operating Temperature:
 - 0° to 55° C
- Vibration
 - MIL-STD-167
- Shock
 - MIL-STD-901E
- EMI
 - MIL-STD-461G, and MIL-STD-1399



Call for complete system characteristics

* Upgradeable. Call for availability

** Planned for 2022/2023

GENERAL DYNAMICS
Mission Systems

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