



Features and benefits

- Single box mast-mount radio in Band 4
- Innovative RF technology supports Frequency Duplex and Time Duplex waveforms:
 - Supports waveforms up to 200 Mbps (upgradeable to 400 Mbps) aggregate in FD mode
 - Up to 16 Mbps aggregate ECCM frequency hopping in TD mode
- SCA Software programmable architecture supports multiple waveforms:
 - High spectral efficiency
 - Long Range
 - ECCM: full band 2,000 hops/sec adaptive
- 100BaseT, IP interface
- Up to 100 m from shelter, and up to 1.2 km remoting with optional AC/DC and media converter
- Meets military design standards
- Product modularity enables future technology insertions and growth in mission capability
- External port for positioner and smart antenna integration
- Extensive BITE, for fast and sure MITTR

High Capacity Radio (HCR)



Combining high-capacity, long range, interoperability and full-band frequency hopping ECCM to suit various deployment scenarios

The HCR point-to-point radio is a state-of-the-art Software Defined Radio (SDR) using the Software Communications Architecture (SCA) open framework. The HCR provides both a hardware and software scalable architecture that supports the Common Operating Environment (COE), new technology introductions, and Everything over IP (EoIP) networks to meet evolving mission requirements.

The HCR radio incorporates and improves the best features of the battle-proven spectrally efficient AN/GRC-245 radio and the ECCM features of the AN/GRC-512 radio to form a software defined radio platform that can perform multiple roles. The HCR provides several radio modes in a single radio common platform enabling each radio relay vehicle to quickly mix and match each radio's mode to suit the battlefield conditions. HCR allows militaries to take on more missions at once, with fewer assets requiring less logistics.

The single box mast mount radio supports the roles of:

- High-Capacity LOS radio relay – both spectrum efficient and long range waveforms
- True full-band ECCM radio relay

For separation distances beyond 100 m, an optional base-of-the-mast AC/DC and media converter allows the radio to operate up to 1.2 km away from the communications shelter.

The radio is controlled using its secure web server or its SNMP interface. This may be done using a local computer or via a remote NMS. Voice orderwire is provided for coordination at all points in the link. The web server delivers full band spectrum scan capability to ease operation in today's difficult spectrum environments.



The HCR ECCM waveform uses time duplex to provide Adapt & Aware full band frequency hopping together with a Frequency Diversity mode, providing the array of electronic counter counter measures (ECCM) required to survive the toughest EW environments.

In addition to Ultra TCS' industry leading adaptive ECCM waveforms, the HCR benefits from other cognitive radio features such as full band spectrum scan and an inter-nodal data channel.

The radio will maintain 34 Mbps of full duplex, spectrally efficient traffic over ranges greater than 40 km. The radio also offers sustained operation at 200 Mbps (upgradeable to 400 Mbps) aggregate data rates. A special orderwire-only mode provides a robust high system gain during antenna alignment.

The mast mount unit interfaces to an external dish or a flat panel antenna depending upon the application. Sector antennas can also be used to support at-the-quick-halt operations with set-up in less than 90 seconds. The radio is interoperable with many current mainstream heavy and lightweight masts.

Having delivered thousands of AN/GRC-245 and AN/GRC-512 radios to major armies throughout the world, the HCR common platform continues the Ultra Electronics TCS tradition of providing breakthrough tactical communications technology.

HIGH-CAPACITY MULTI-MISSION RADIO – specifications

Frequency Band

- 4400-5000 MHz Band 4

HCR Transmission Rates (full duplex)

- High Spectral Efficiency Mode
2048, 8448, 34368, 70736 kbps
100 Mbps
- Long Range Mode
2048 kbps, 34368 kbps
- ECCM Mode
2048, 4096, and 8448 kbps
Other waveform options available

Range Capabilities

- Greater than 40 km clear LOS PTP
- Data Rates and Spectrum Occupancy:
 - 34368 kbps: 10 MHz
 - 70736 kbps: 15 MHz
 - 100 Mbps: 18 MHz
 Other waveform options available

Waveforms

- SCA architecture
- Multiple waveforms supported;
 - High-Capacity Spectrum Efficient
 - AN/GRC-245 interoperability
 - Long Range
 - Adaptive full-band hopping ECCM
 - DPSK EOW

ECCM Features

- Full band Automatic Frequency Change mode
- State of the art FECC with Interleaving
- Robust RF front end and fast timing recovery
- Adaptive Power Control
- Hidden radio frame

True ECCM Mode (TD only)

- 2000 hop/sec Full Band Adaptive and Spectrum Aware with Frequency Diversity

Radio Interfaces

- Ethernet
 - IP Traffic Interface 100BaseT Ethernet, IPV4 or V6
 - SNMP Remote Control Interface 10/100BaseT
- Serial Traffic (optional)
 - G.703
 - V.35
 - Other interfaces available

Security

- Interoperable with external encryption devices
- Embedded and indigenous crypto support

Power Requirements

- 37 – 70 VDC, 110 watts typical
- 115/230 VAC and 28 VDC with adapter

Shelter to Mast Unit Separation

- Up to 100 m
- With optional AC/DC adapter, up to 1.2 km

Environmental

- Temperature
 - Operating -40 °C to +55 °C (Mast Mount Radio)
 - Storage -40 °C to +71 °C
- Altitude
 - Operating 3,000 m
 - Storage 12,000 m

Physical

- Mast Mount Radio
 - No Handles
 - Height 14.7 in. / 373 mm
 - Width 15.9 in. / 404 mm
 - Depth 5.25 in. / 134 mm
 - With Handles
 - Height 18.4 in. / 468 mm
 - Width 22.1 in. / 561 mm
 - Depth 9.7 in. / 246 mm
 - Weight less than 37.5 lbs / 17 kg

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