



# Ultra ORION X500-S

## Secure High-Capacity Over-Water Network

### Features & Benefits

- 3 channel software-defined radio system
- Ship-to-ship and ship-to-shore communications
- PTP, PMP, mesh and AN/GRC-245 HCLOS/HCR interoperable waveforms
- Enables incremental growth using SDR and modular architecture
- 4G LTE enabler
- Military & public safety bands all in one radio (L/S/C-Band and ISM)
- Up to 500 Mbps system
- Embedded crypto (FIPS 140-2 Level 2, AES-256)
- External crypto compatible
- Secure and intuitive graphical user interface
- MIMO technology
- Fully ruggedized system
- Optional ECCM frequency hopping and LTE access

The Ultra ORION X500-S is a multichannel, multiband, point-to-point (PTP), point-to-multipoint (PMP) and mesh radio system. It provides broadband, MIMO-capable over-water communications to medium and large ships. This software-defined radio (SDR) system offers up to 500 Mbps throughput and operational flexibility within a small form factor.

### More Missions & Situational Awareness

The X500-S can be used for multiple maritime applications such as coastal surveillance, maritime interdiction and force protection operations. It greatly enhances situational awareness by providing secure and reliable over-water, on-the-move ship-to-ship and ship-to-shore communications. It easily supports broadband IP services such as live video feeds, super-high resolution pictures and radar & sonar imaging.

X500-S is the ideal solution for amphibious operations, maintaining secure high capacity connectivity between floating operations centers, landing crafts and land-based command posts. It offers long range communications of over 30 nautical miles in ship-to-shore applications.

This flexible system can be used stand-alone or adjunct to navigation or naval combat systems. The radio does not require GPS and its ECCM waveforms give the radio the capability of operating in a high-threat environment.

### IP Connectivity

The radio has the capability to converge, cross-connect and relay 3 channels of IP communication by supporting up to 2 PTP, PMP and/or mesh long range links together with 802.11 access or LTE user equipment (UE) mode. Each channel can use the radio's embedded AES-256 encryption capability or external crypto devices.



### Interoperability

The X500-S is interoperable with the AN/GRC-245 HCLOS and the X500-G radio over multiple bands. This allows communications to existing ground-based systems.

### Wide Band Operation

The radio operates in the L-Band, S-Band, C-Band and ISM frequency bands, giving it spectrum flexibility and a cross-band capability. The radio's high performance RF filters facilitate co-site coordination.

### Device Access

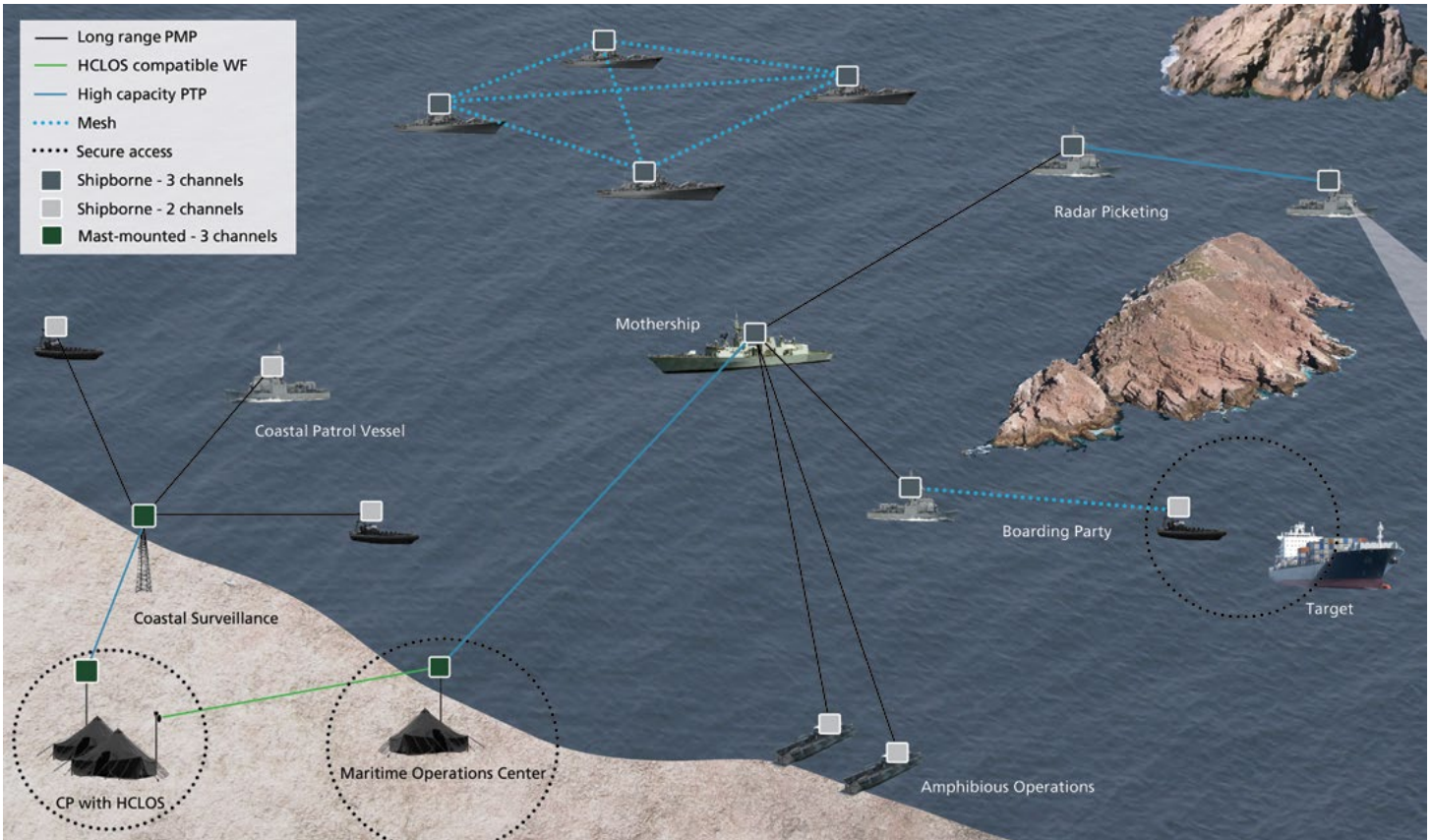
X500-S allows connection of smartphones and tablets to push down broadband connectivity to the edge of the network. The radio's 802.11 connectivity also permits the user to securely manage the radio with a smart device.

### Packaging and Antennas

The radio reduces the size, weight and power (SWaP) requirements of a system by supporting multiple channels and frequency bands in a single-box radio. Various antennas are available to meet the mission needs.

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### Specifications

Parameter	Specification
Frequency	Band 3 (L-Band, 1350-1850 MHz), Band 3+ (L/S-Band, 1350-2690 MHz), Band 4 (C-Band, 4400-5000 MHz), 2.4 GHz ISM, 5.2/5.8 GHz NII/ISM, LTE (700 MHz)
Throughput	Up to 500 Mbps for system
Number of Channels	3 (2 SDR + 1 secure access channel)
Radio Access Method	TDD/FDD
Modulation & Coding	BPSK up to 128QAM with Automatic Modulation & Coding (AMC)
RF Techniques	Adaptive MIMO 2x2 (Transmit Diversity, Spatial Multiplexing, MRC)
Transmit Power	Max. +36 dBm
Channel Size	From 2.5 to 40 MHz
Waveforms	Library of LOS and NLOS waveforms including over-water, PTP, PMP and OTM. Optional mesh and frequency hopping waveforms. Interoperability with AN/GRC-245 A/B HCLOS & X500-G.
Traffic Security	AES-256 - FIPS 140-2 Level 2, optional ECCM features
Antennas	Flat panel, omnidirectional, sectorial, directional and tracking
User Interface	100/1000 BaseT Ethernet
Network Management	Intuitive User Interface (HTTPS, SNMPv3)
Size (HxWxD)	4 x 11.8 x 12" (102 x 304 x 300 mm)
Weight	Up to 21 lbs (9.5 kg)
Power	28 VDC, optional 115/220 VAC using network interface unit
Temperature	-40 to +60°C (operating), -40 to +70°C (storage)
Environmental	MIL-STD-810G & 461F, IP67



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