



MULTI-MODE SURVEILLANCE RADAR

The Seaspray 7000E Active Electronically Scanned Array (AESA) multi-mode surveillance radar provides an unrivalled surveillance capability as the primary sensor on airborne assets to meet the challenges of the 21st century.

The Seaspray range of radars has been delivering high performance surveillance capabilities to armed forces and paramilitary users for over 40 years. Seaspray 7000E is a member of the successful Seaspray family of surveillance radars, which also comprises the Seaspray 5000E and Seaspray 7500E.

It combines a state-of-the-art AESA with a Commercial-Off-The-Shelf (COTS) processor to deliver a leading edge capability covering air-to-surface, air-to-air and air-to-ground environments. The company is proud that the UK Royal Navy selected the Seaspray 7000E as the launch Customer, and it is now fully integrated into the state-of-the-art AW159 Lynx Wildcat.

KEY FEATURES

AESA technology and flexible waveform generation capability enables Seaspray 7000E to deliver peak performance in all modes. Use of multiple low power,

solid state Transmit/Receive Modules (TRM) makes the radar more reliable than conventional radar systems. This results in a significant cost benefit over the life of the system. Superior performance in detecting small targets, such as Fast Inshore Attack Craft (FIAC) in high sea states, through use of composite mechanical and electronic scanning.

KEY BENEFITS

- Excellent performance
- Low cost of ownership
- True multi-mode operation
- Superior reliability, enabling mission success
- Ease of installation
- Easy to use
- Mode interleaving
- Flexible system integration options.

Interleaved modes by virtue of its ability to change waveforms pulse-to-pulse. For instance, surface surveillance and weather detection can be provided simultaneously. Effectively two radars within one system. Comprising just two primary air cooled Line Replaceable Units (LRU) and requiring no waveguide, Seaspray 7000E is easy to install.

SEASPRAY 7000E

Seaspray 7000E can be provided as a turnkey solution with embedded navigation sensors and Human Machine Interface (HMI) or as a sensor solution to integrate with a platform mission system using industry standard interfaces.

Technical specification

CHARACTERISTICS

Frequency	X Band
Scan Coverage	360°
Maximum Range	200NM (320NM Weather Mode)
Mean Time Between Failure (MTBF)	2,000 hours
Cooling	Unconditioned air
Weight	86.2kg (Antenna and Processor LRUs)
Dimensions (approx.)	Processor 260x500x210mm Scanner 540x886x281mm

SWEPT VOLUME

IFF Interrogator Antenna	285x880x40mm (large) 165x800x40mm (small)
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INTERFACES

Standard	Ethernet, RS422, RS232 Other available on request
Video Outputs	Multiple options for Mission System and cockpit display compatibility

FUNCTIONS

Track While Scan	Automatic up to 200 tracks
Track Identification	AIS integration, ISAR and IFFI (optional)
Mode Interleaving	Simultaneous dual-mode operation
EO Integration	Option

CAPABILITIES

Surface surveillance	Long Range Search Priority Track Small Target Mode
Navigation	Land Mass Discrimination Weather Detection Turbulence Detection
Beacon Detection	Search and Rescue Transponder (SART)
Target Imaging/ Classification	ISAR Range Profiling

GROUND MAPPING

Spot SAR	High resolution ground mapping
Strip SAR	Medium resolution wide Area ground mapping Oil slick detection Iceberg detection
Moving Target Detection	GMTI Air-to-air MTI
Air-to-Air	Dedicated Air-to-Air mode ADS-B (option) IFFI (option)

PERFORMANCE BENEFIT OF AESA RADAR

The composite mechanical and electronic scanning enables conventional scan rate wide area search while simultaneously fast scanning every target to give vastly improved clutter cancellation and superior detection performance. This performance is maintained from high altitudes typically encountered by UAVs operating at the full extent of their LOS data links.

SUPERIOR OPERATIONAL AVAILABILITY & RELIABILITY

The Seaspray 7000E AESA minimises the impact of transmitter failure by removing this single point failure, high power, 'relatively' low MTBF LRU. This is replaced by many Transmit Receive Modules (TRMs) with high MTBFs within the antenna array. At the core of the AESA radar design is the ability to tolerate individual item failure. Component failures within the array result in graceful performance degradation rather than complete system failure, delivering high operational availability when compared with conventional radar systems.

Due to its high reliability and availability the customer has a reduced maintenance requirement and has the option to reduce spares holding, resulting in significant cost benefits over the life of the system.

BACKGROUND

As a company we have been at the forefront of the airborne radar market since the 1950s when the AI23 radar became the world's first high power monopulse radar to enter squadron service. Maintaining our leading position in the market, we have been developing AESA technology since the early 1990s and now possess a range of AESA radar products capable of meeting the requirements of the airborne radar market.

Within our radar Centre of Excellence, we have designed, developed and supported radar systems for over 60 years. Our Software Development capability meets the requirements of CMM Level 5. Over 3000 radar systems have been supplied for fixed and rotary wing aircraft in surveillance, fire control and ground attack roles. We have extensive experience of surveillance radar and have produced more than 700 systems in our Seaspray, PicoSAR and Blue Kestrel families of radars.