SEASPRAY 5000E

Radar & Advanced Targeting

MULTI-MODE SURVEILLANCE RADAR

The Seaspray 5000E 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.

Seaspray AESA radars are in operational service globally. Seaspray 5000E is the lightest member of the family, which also comprises the Seaspray 7000E and Seaspray 7500E whose Customers include the UK Royal Navy and the United States Coast Guard.

Seaspray radars have been delivering a high performance surveillance capability to armed forces and paramilitary users for over 40 years.

Seaspray 5000E employs the Seaspray AESA family common processor, coupled with a compact state-of-the-art AESA antenna to deliver a leading edge capability covering air-to-surface and air-to-air environments.

It is installed in both fixed wing and rotary wing platforms, with the lightweight radar ideally suited to the needs of manned and unmanned operations.

KEY FEATURES

- 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

It's excellent performance and reliability stems from its AESA architecture and use of digital waveforms to optimise performance in all modes. It combines mechanical scanning of the antenna with electronic scanning of the radar beam to provide a cost-effective radar system with a wide range of capabilities from long range search to exceptional small target detection.

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Comprising just two air cooled Line Replaceable Units (LRU), which can be remotely connected to ease installation issues, Seaspray 5000E is a highly reliable lightweight surveillance radar that can be easily integrated with other mission sensors and avionics using industry standard interfaces.

TECHNICAL SPECIFICATION

CHARACTERISTICS	
Frequency	X Band
Scan coverage	Installation dependant
Maximum range	200NM
Mean Time Between Failure (MTBF)	~2,000 hours
Cooling	Unconditioned air
Weight (installation dependent)	48kg (Antenna and Processor LRUs)
Standard interfaces	Ethernet RS422 RS232 (Others available on request)
Video outputs	Multiple options for Mission System and cockpit display compatibility

DIMENSIONS (APPROX)	
Processor (W x D x H)	500mm x 260mm x 210mm
Antenna (W x D x H)	430mm x 280mm x 140mm

FUNCTIONS	
Track While Scan	Automatic up to 200 tracks
Track Identification	AIS integration and ISAR
Mode Interleaving	Simultaneous dual mode operation
ADS-B	Option
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
Moving Target Detection	GMTI Air-to-air MTI

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 RELIABILITY AND OPERATIONAL AVAILABILITY

The Seaspray 5000E 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.

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