C-catcher

Airborne Surveillance AESA Radars

ELM-2025 Family

Introduction

ELTA's airborne surveillance radars equip navies, coastguards and air forces around the globe. Hundreds of these operationally proven radars have been delivered over the past three decades, achieving iconic status as the industry standard for maritime patrol radars. These radars continue to provide exceptional performance deployed from a wide range of platforms, including patrol aircraft, high performance business jet, helicopters, UAVs and aerostats.

C-catcher Maritime Patrol Radars (ELM-2025) with AESA Technology

The C-catcher airborne radars, ELTA's latest series of airborne surveillance radars, employ the company's Active Electronically Scanned Array (AESA) antenna technology. A range of models with different configurations accommodate a wide range of airborne platforms, from small UAVs through to large commercial jets. AESA technology provides many important advantages, including: unique operational modes; simultaneous multi-mode operation; enhanced detection of small targets; improved MTBCF, high mission availability; and increased redundancy. Electronic scanning in both elevation and azimuth eliminates the need for motor driven mechanical tilt and enables the radar to efficiently compensate for aircraft maneuver, increasing accuracy. Operating in X-Band, the C-catcher radars are effective day-and-night and in all-weather and visibility conditions - penetrating clouds, rain, fog, smoke, smog and camouflage. High automated, these multi-mode, multi-role radars are able to efficiently perform sea, land and air missions.

Maritime Surveillance

Operating at high altitudes to maximize wide area coverage, the C-catcher radars detect, track and classify vessels in all sea states in maritime modes. Capable of detecting even very small targets and effectively reject land clutter, the radars are able to operate very close to the shoreline. Integration with AIS allows for an automated correlation of AIS targets with the radar data.

Maritime Modes

- Maritime Surveillance of small to large targets with a high level of discrimination
- Range Profile/Signature (RS)
- Inverse SAR (ISAR)
- Search and Rescue Transponders Detection (SART)

The radars perform the following missions in support of maritime forces:

- ASW - Submarines and Periscopes Detection
- ASuW - Naval Surface Detection
- Illegal Fishing Monitoring
- Search and Rescue
- Illegal immigration
- EEZ monitoring and protection
- Environmental protection (monitoring sea pollution, icebergs mapping)

Ground ISR

Synthetic Aperture Radar (SAR) and Ground Moving Target Indicator (GMTI) modes support wide-area ground reconnaissance, including the surveillance of stationary and moving targets. In SAR mode, the C-catcher radars employ Strip and Spot imaging techniques. The GMTI mode enables detection and tracking of moving targets, within a wide geographical area and with high-rate tracking and low radial velocity. The moving targets can be superimposed over SAR image or geographic maps.

Ground Modes

- Spot SAR (SPOT)
- Strip SAR (STRIP)
- Ground Moving Target Indication (GMTI)
- Ground Target Tracking (GTT)

The radars perform the following ground surveillance missions in support of military, homeland security, and police forces:

- Standoff border surveillance
- Intelligence gathering
- Terror prevention
- Smuggling and illegal immigration prevention
- Coastline and harbor protection

Air-to-Air Mode

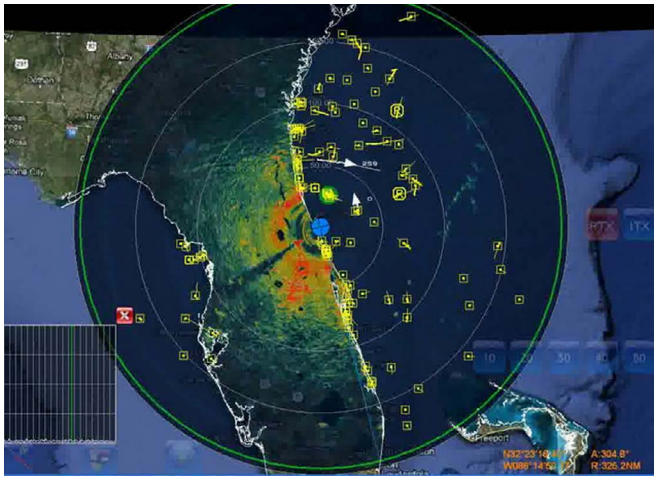
In Air-to-Air mode the C-catcher radars are configured for airborne targets detection and tracking. Track While Scan (TWS) capability enables the radars to continuously track multiple detected targets while continuing to scan for additional threats. When integrated with ADS-B or IFF, the radars identify whether aerial targets are hostile.

Navigation and Weather

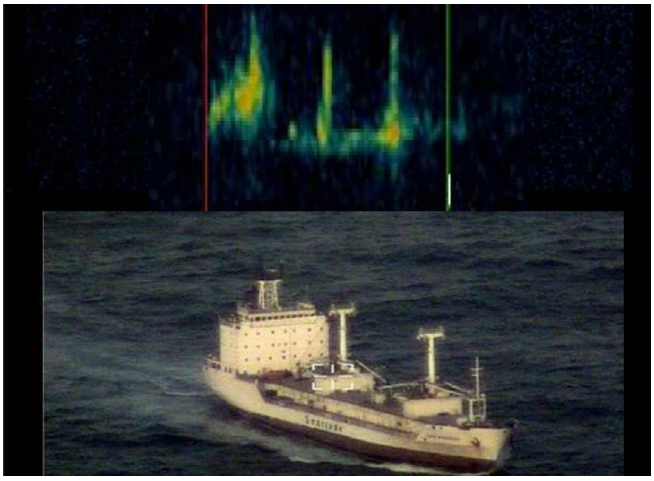
The C-catcher radars are also very effective weather research and navigation tools. They can be used to analyze hurricanes, determining their structure and composition.

AESA Airborne Surveillance Radars Key Features

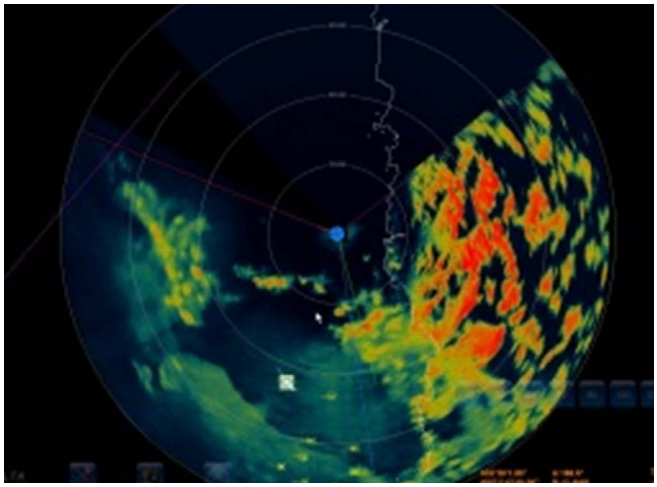
- Very high revisit rate and automatic tracking of all detected targets (TWS)
- High-resolution Spot and Strip Synthetic Aperture Radar (SAR) imaging
- Look-up/Look-down all aspect airborne target detection and tracking
- Navigation and Weather modes for flight and navigation safety
- SART/Beacon detection to locate survival craft or distressed vessels
- Interleaving detection modes (simultaneous multi-mode) capability
- Advanced radar operation station Multi Sensor Display and Control (MSDC) – optional for standalone on-board and ground operation



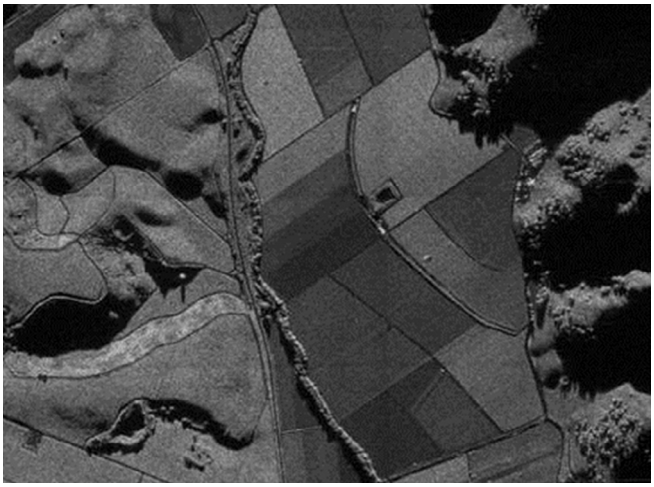
Maritime Surveillance Display



ISAR Display



Navigation and Weather Display



Spot SAR Display

C-catcher

Airborne Surveillance AESA Radar
ELM-2025 Family

Technical Specifications

Airborne Surveillance AESA Radars	ELM-2025F	ELM-2025R	ELM-2025S
			
	Fix (Non-Rotating) Multi-Panel Radar	Rotating Rad	Single Unit Ultra-Light Non-Rotating Radar Designed for small sized UAVs and VTOLs
Maximum detection range	200 NM	200 NM	200 NM
Typical detection range for yacht/ small boat	up to 75 NM	up to 60 NM	up to 20 NM
Automatic Track While Scan (TWS)	up to 5000 targets	up to 5000 targets	up to 2000 targets
Scan coverage	360° (120° for a single Antenna)	360°	120° (expandable to 210°)
SAR / ISAR resolution	0.3 m	0.3 m	0.3 m
Power consumption*	1.2kW up to 4.0kW	1.2kW up to 3.5kW	0.5kW up to 1.0kW

* Scalable to size and configuration (multiple antennas); shall affect power consumption and weight

IAI – ELTA GROUP
WWW.IAI.CO.IL
MARKET@ELTA.CO.IL