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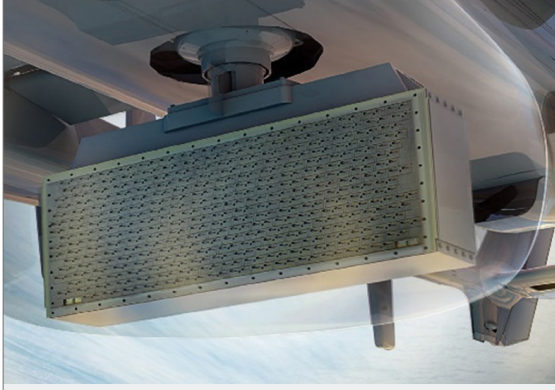
APY-11 ELECTRONIC SCAN (ES)

Airborne Maritime Surveillance AESA Radar

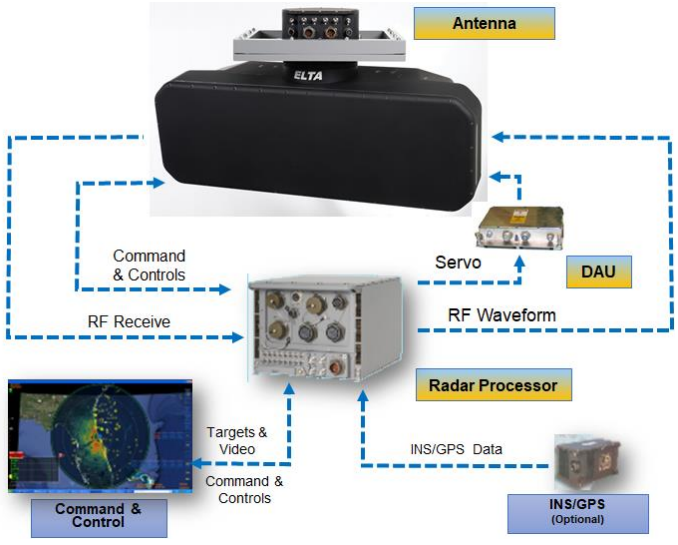


APY-11 ES is part of a combat-proven family of software defined long-range airborne multi-mode maritime surveillance radars designed for deployment on fixed-wing aircraft, rotary-wing aircraft, and unmanned aerial vehicles (UAVs). Operating in X-band, the APY-11 ES is a true all-weather, day and night sensor capable of penetrating clouds, rain, smoke, smog, fog and man-made camouflage. APY-11 ES Radar incorporates a very high degree of automation with tools like automated target initiation, track-while-scan (TWS), automatic target classification, target sorting, and identification. APY-11 ES relieves operator fatigue during long missions while maintaining very low false alarm rates and offers the widest range of target detection size and operating ranges.

APY-11 ES operational throughput is augmented by its capability to interface and operate in connection with other sensors, such as: Electro-optical/ Infra-red (EO/IR), Identification Friend or Foe (IFF), Automatic Identification System (AIS), Automatic Dependent Surveillance – Broadcast (ADS-B) etc., to complete the maritime suite with or without a requirement for a mission system. With systems deployed worldwide, APY-11 radars have been continuously updated to utilize the vast operational experience that has been accrued as well as being upgraded with the latest available technologies. This version incorporates Active Electronically Scanned Array (AESA) technology.

Three surface detection modes, three maritime classification modes, three air-to-ground modes, 3-D pulse Doppler air-to-air mode, and navigation and weather mode are standard. The air-to-air mode is capable of automatically detecting and tracking up to 256 very small radar cross-section (RCS) targets at extremely low altitudes. Surface search modes provide automatic target TWS function performing automatic extraction of more than 2000 simultaneous contacts. TWS features include automatic and manual track initiation, memory mode (dead reckoning), lost track handling, track allocation to target plot, track capacity alert, and uncertainty circle display.

Mode interleaved or interlaced with surface search and air or weather enhances mission integration, increase operational situational awareness, and flight safety.



MICRO-SIZED, SECURE SOLUTION FOR MAXIMUM MISSION FLEXIBILITY

KEY BENEFITS

- High mean time between failure of 3,000+ hours
- Small target detection at higher altitudes and sea states
- Fully automated maritime surveillance and long-range maritime patrol
- Air-to-air situational awareness
- Search and rescue detection
- Law enforcement, fishery protection, and drug enforcement case evidence support
- Environmental science data and weather observation
- High-resolution classification and identification capability

FEATURES

- Automatic detection and automatic tracking of small targets in adverse sea conditions
- Strip and spot synthetic aperture radar (SAR) imaging and GMTI for ISR support for ground operation
- Classification modes: Range profile, Inverse-SAR (ISAR) and Classification SAR (CSAR), with automatic classification to class (ISAR library)
- Navigation and weather mode
- Integrated IFF/AIS/ADSB system
- Advanced Ground Radar Operation Station - optional for standalone operation

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TECHNICAL ATTRIBUTES	PARAMETERS
Technology Readiness Level	TRL-9
Radar	Airborne Multi-mode, X-band, AESA
Total Power Consumption	3.2 kW
Weight	209.4 lbs (95 kg)

OPERATIONAL CAPABILITY	PARAMETERS
Detection range: small targets	Horizon Limited to 80 nm
Detection range: medium to large targets	Up to 200 nm
Automatic Track initiation, TWS and Class While Scan	2,000 simultaneous surface targets, 256 air targets
Mean Time Between Failure	Greater than 3,000 hours between failures

APY-11ES MODES INCLUDE:

- **Long Range Surface Search (LSS)** – Scan rates and RF waveforms matched to selected range scale for detection of medium to large maritime targets. Range scale selectable to 200 nm with Automatic detection, TWS and plot extraction are performed.
- **Anti Submarine Warfare (ASW) /Small Targets Detection** – Utilizing high scan rate and highly compressed pulse for detection of small targets to 80 nm range. Automatic detection, TWS and Automatic plot extraction.
- **3-D Pulse Doppler Air-to-Air –** For full azimuth detection of medium to very fast-moving airborne targets (with tracking available in a sector around the fore/aft axis). Range scale selectable to 80 nm Pulse Doppler mode incorporating both detection and tracking.
- **Maritime & Land Surface Moving Target Indicator** – Selectable at up to 80 nm range scale, using Doppler processing and specifically optimized for detection of high-speed moving surface targets displayed with direction of movement and target velocity.
- **Navigation and Weather (NAW)** – A RTCA/DO-173 compliant Weather Radar Mode providing 4-color ISO-contour weather avoidance display with selectable up to 360° or any display sector. Range up to 200 nm. In NAW mode, displays a "real beam" map of the surface showing sea surfaces returns, land mass returns combined with weather returns for full flight safety situational awareness.
- **Classification Modes: Range Signature (RS), ISAR and CSAR, and Class While Scan (CWS)** – RS provides a fast method of preliminary target classification without interrupting normal ASW/LSS scan. RS signatures of all maritime targets automatically processed and stored concurrently with the Sea Search scan. ISAR mode presents a movie like B-scope image of the selected target in the form of a profile (Range vs Doppler) enabling precise measurement of overall length and class. CWS further reduces operator cognitive load by automatically classifying the target and displaying a different symbol for various size related classifications (small, medium or large) and provides vessel type. Optional ISAR Classification Library permits fast and simple semi-automatic classification to various types of stored ISAR images.
- **Synthetic Aperture Radar (Spot-SAR)** – Provides four patch sizes for medium and high resolution imaging of targets, water surface or terrain. Selectable between 2.5 Km x 2.5 Km at 0.5m, 5.0 Km x 5.0 Km at 1m, and 20 Km x 20 Km at 5m.
- **Strip-SAR** – Provides rolling SAR image in two available swath widths for high resolution imaging of piers, harbors, refinery and oil installations, oil spills, airfields, ice and areas of interest, selectable with settings of: 10 Km at 1m, 40 Km at 5m resolution.
- **Ground-MTI** – Can be superimposed over Spot-SAR images or over a geographic map. Provides for vehicle auto tracking.
- **Search and Rescue Transponder (SART)/Beacon** – Enables the radar to interrogate an International Maritime Organization (IMO) standard SART.
- **Sensor Integration** – Provides full correlation of Radar maritime and airborne targets with AIS, ADS-B and IFF data for enhanced targets identification and filtering with or without an integrated mission system. EO/IR Camera Slew allows other onboard sensors to point at a Radar target's location. Targets can be marine, ground or air.

APY-11 Electronic Support (ES)

Non-Export Controlled Information

These item(s)/data have been reviewed in accordance with the International Traffic in Arms Regulations (ITAR), 22 CFR part 120.34, and the Export Administration Regulations (EAR), 15 CFR 734(3)(b)(3), and may be released without export restrictions.

L3Harris Technologies is the Trusted Disruptor in the defense industry. With customers' mission-critical needs always in mind, our 50,000 employees deliver end-to-end technology solutions connecting the space, air, land, sea and cyber domains in the interest of national security.

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