

ES-3601U AND ES-3701U

Radar electronic support measure systems for submarine naval applications

L3Harris' ES-3601U and ES-3701U, a family of passive radar-detection electronic support measure (ESM) systems for submarines, are essential for survival in the electromagnetic threat environment of the modern battlefield. These complete tactical ESM systems enable warfighters to respond to threats in real time and are in service on submarines across the world's naval fleets.

ES-3601U

ES-3601U is a cost-effective, high-capability radar ESM system that enables warfighters to intercept, analyze, locate, evaluate and report radar signals. ES-3601U uses an innovative monopulse direction-finding (DF) system for accurate bearing measurements and has been integrated into a variety of combat system environments. It is operational on subsurface platforms from Europe to Asia.

ES-3701U

ES-3701U is a high-performance radar ESM for submarine applications. The system uses a circular phase interferometer for monopulse angle of arrival (AOA) measurement to achieve high accuracy. ES-3701U implements advanced signal algorithms for positive emitter identification and library classification. It also provides robust interference removal to remain functional in a littoral signal environment while removing multipath to reduce the effects of reflected signals.



BENEFITS

- > Provides real-time situational awareness essential for tactical decision making and mission fulfillment
- > Offers a proven turn-key solution for underwater platforms with continued service for over 20 years
- > Supports multiple antenna configurations to fit platforms' mission requirements
- > Eliminates the need for antenna maintenance with a single high-pressure radome



U.S. Navy photo by Mass Communication Specialist Seaman James R. Evans

ES-3601U

KEY SYSTEM CAPABILITIES

- > 100% probability of intercept
- > Instantaneous DF over 360°
- > Accurate 2x4 element monopulse DF
- > Long-range detection, DF and tracking
- > Measures all radars simultaneously

PERFORMANCE

- > 2-18 GHz instantaneous radio frequency (RF) coverage with AOA on every pulse
- > High sensitivity
- > Receives right-hand circular polarization (RHCP) and left-hand circular polarization (LHCP)
- > Accurate pulse measurements
- > Processes narrow pulses

SIGNAL PROCESSING PERFORMANCE

- > Processes 1 million pulses per second (MPPS) signal environment
- > 20,000 emitter mode library capacity
- > Tracks 500 emitters simultaneously

HUMAN-MACHINE INTERFACE (HMI)

- > Windows user interface
- > Easily integrated to modern combat management systems (CMS)
- > HMI hosted on CMS or accessed via remote desktop
- > Pulse descriptor word (PDW) recording and playback
- > Built-in training

OPTIONS

- > Frequency-modulated continuous wave (FMCW) detection and identification at very high sensitivity
- > Electronic intelligence (ELINT) subsystem uses digital receivers for precision measurements
- > High-speed digital recorder

ES-3701U

KEY SYSTEM CAPABILITIES

- > High probability of intercept for instantaneous emitter detection
- > High sensitivity for long-range detection
- > Accurate AOA on every pulse
- > Wideband, narrowband and low-band subsystems for comprehensive signal exploitation using advanced sapience emitter processing algorithms
- > Handles FMCW radars with ultra-high sensitivity and DF

PERFORMANCE

- > Custom frequency coverage
- > Precision DF over elevation and dynamic range
- > Accurate pulse measurements
- > Processes narrow pulses
- > Extensive on-board and off-board interference rejection

SIGNAL PROCESSING PERFORMANCE

- > < 1 second reaction time
- > Processes 1 MPPS signal environment
- > 20,000 emitter mode library capacity

HMI

- > Windows user interface
- > Easily integrated to combat systems
- > Can be operated from multi-function consoles
- > Built-in training

OPTIONS

- > High-speed digital recorder with ELINT recording capability
- > Custom cabinets to meet ship's environmental requirements



Installed AS-370 submarine antenna



AS-370 ESM mast antenna with millimeter-wave coverage coverage



AS-900 ESM mast antenna



Submarine equipment with water-cooled noise reduction equipment

ES-3601U and ES-3701U

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