AE-4500 Ground Auto ESM System

The SNC Ground-Based AE-4500 Auto Electronic Support Measure (ESM) System provides small form factor radar detection and collection capabilities in a modular format for ease of setup, collection, and transportation by reducing size, weight, and power in a ground based environment.

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Platforms

Fixed-Site, Ground Mobile,
Small Patrol Boat, Coastal Surveillance

Related Equipment

Receiver Processor Assembly (RPA),
Antenna Panel Assembly (APA),
Antenna Panel Assembly - Extension (APA-X)
RF Electronics Assembly (REA),
RF Frequency Extension (REA-X)

DETECTS & IDENTIFIES RADARS

The AE-4500 System is an ESM solution intended for installation on fixed antenna masts, mobile shelter systems, buildings, and other areas of tall elevation to enable maximum coverage of the surrounding environment. The system provides TRL 9 maturity with no development required for UHF through K/Ka band operation. As a flexible, open architecture solution, it uses a 3U OpenVPX Receiver Processor Assembly (RPA) integrated with different antenna arrays and advanced RF electronics to provide precision direction finding. The system uses a software – defined radio architecture that supports third party application development for affordable system growth through available software and firmware developer's kit (SDK & FDK).

The AE-4500 Ground System's default fully automatic search mode provides hands-off operation during short or long missions. Search mode may be stopped at any time by an operator for manual set on collection for recording of complex signal patterns.

The system provides precision direction finding (DF) accuracy and wide instantaneous azimuth coverage using phase interferometer antenna arrays. The system is designed to operate autonomously but may be controlled via remote control over a datalink or by a closely located operator.

The AE-4500 Ground System detects and identifies modern radars and other non-communication signals. Its mature, field-proven hardware and software has been installed and used operationally on a variety of platforms. Additionally, it is configurable for operations over multiple frequency ranges using a variety of antenna arrays, and is small enough to be quickly unpacked, setup, and deployed to an operational state.

The AE-4500 Ground System is a standalone collection and processing system that includes all antenna, RF and digital signal processing hardware and software required for emitter detection, deinterleaving, identification, multi-platform geolocation, correlation, and reporting. Available options support frequency extension, additional antennas, and distributed installations for larger systems. The open architecture design includes firmware and software applications for pulsed and low-powered radar emitters. Ground Processing Exploitation and Dissemination (PED) software controls collection and provides situational awareness for operators.

REMOTE PROCESSING

- Remote Control of System via datalink
- Detection, identification & precision direction finding of pulsed, CW & FMCW emitters
- On-board emitter deinterleaving & identification, correlation & reporting
- Supports multi-ship geolocation via triangulation or TDOA methods
- Pre-Mission Planning Tools allow users to create & optimize Scan Plans & Emitter Databases
- Post-Mission Analysis Tools allow users to play back, sort, isolate & examine recorded data

SYSTEM ATTRIBUTES

- Unattended, passive, networked radar surveillance
- Precision direction finding up to 40 GHz
- 120° instantaneous azimuth coverage
- Manned or remotely operated systems
- Interfaces with tactical data links
- Process pulsed, CW & FMCW emitters
- Modular & transportable enabling quick setup & teardown
- Light-weight & low-power

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