Raytheon

RAID System
Mobile High Ground for the Warfighter

Saving lives with low-cost persistent surveillance, RAID — as a multifunction battlefield system — increases situational awareness, provides force protection, and serves as a force multiplier, allowing forces to focus on mission objectives.

Benefits

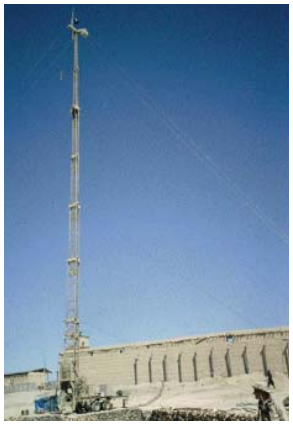
- Persistent Surveillance
- Intelligence, Surveillance and Reconnaissance (Unobstructed Line-of-Sight)
- Enhanced Force Protection
- Multi-Sensor Configurable
- Highly Mobile Within Theater
- Minimal Transportation and Manpower Requirements
- High Operational Availability
- Established Rapid Logistics Support and Field Service (WLSS)
- Low-cost
- Initial System Delivery Fewer Than 90 Days After Order

The innovative Rapid Aerostat Initial Deployment (RAID) system employs a variety of platforms (aerostat, tower or mast) and sensor suites (EO/IR sensor, radar, flash and acoustic detectors) to provide unprecedented elevated persistent surveillance (EPS) in support of intelligence, surveillance and reconnaissance (ISR) needs. The RAID system supports a variety of missions ranging from force protection to force projection to border surveillance. EPS is achieved through use of fixed mast, expeditionary tower (HMMWV-mounted), mobile tower or aerostat platforms.

The RAID system's primary payload is an electro optical/infrared (EO/IR) sensor including eye-safe laser range finder, laser range designator and laser illuminator. The sensor suite can be complemented with slew-to-cue radar sensors, as well as other stand-alone capabilities, such as radio frequency data and video transmission, acoustic detection, flash detection and elevated communications relay. Voice, data and video transmission capability is provided through SINCGARS, EPLRS and a digital RF link. The RAID data set is compatible to and operational with a variety of existing and planned data fusion applications, including persistent surveillance and dissemination system of systems (PSDS2) and enhanced tactical automated security system (eTASS).

RAID platforms have been U.S. government flight-certified for transport in a variety of fixed and rotary wing aircraft, including the C-130, C-5, C-17, CH-43 and CH-53. System support components are outfitted in standard containers for increased mobility and environmental protection in operational areas.

The RAID System is "proven technology" with a distinguished service record in support of both Operation Enduring Freedom and Operation Iraqi Freedom. With several thousand hours of operation in hostile territory, the RAID system has maintained an operational readiness in excess of 97 percent.



RAID Tower System

RAID System

Fielded RAID Capability

More than 60 RAID systems are currently supporting Operation Enduring Freedom and Operation Iraqi Freedom (U.S. Army and U.S. Marine Corps).

The RAID aerostat system comprises a 17m aerostat, tether (fiberoptic and copper cabling), mobile mooring system, EO/IR sensor, IRU/PLGR, map overlay software, helium trailer, generator and command shelter (14' ISO); the 17m aerostat elevates a <200 lb payload to 1000' ASL.

The RAID tower system (107' height) comprises a tower, EO/IR sensor, map overlay software, AFATDS/PSDS2 connectivity, RF data link, generator and command shelter (7' ISO).

These systems are successfully used in OEF/OIF for local area situational awareness (e.g., convoy drivers check with RAID operator for "road clear" indication before departing the Green Zone); forward operating area surveillance (e.g., LCMR detects mortar launch and can cue the RAID camera to clear Point of Origin within seconds of cue); and munitions dump security (Eagle Eye 24/7 M-STAR/EO-IR sensor surveillance of recovered Iraqi munitions, preventing theft for IED fabrication).

RAID system major assemblies are off-the-shelf, enabling fast delivery (from contract award to warfighter in 70 days).

Communications Payload

RAID systems can also be used as elevated communications platforms, significantly improving communications connectivity and situational awareness for the field commander. Elevated SINCGARS (voice), EPLRS/MicroLite (data) and PSC-5D (voice/data) radios functioning as RF relays benefit from direct line-of-sight and reduce/eliminate multi-hop communications, improving the message completion rate (MCR) performance.

Mobility

RAID aerostat and tower systems are mobile/expeditionary. Small crew size is required for setup and operation. Flights of five days duration with one hour maintenance between flights are supported. Off-the-shelf equipment simplifies maintenance and repair. Bullet damage to aerostat is repaired onsite (aerostat inhaul within 30 minutes and in-field patch repair typical).

Logistics/Whole Life Service and Support (WLSS)

RAID Systems are fully supported by RAID WLSS to assure effective operation and economical ownership by the customer. WLSS support comprises depot operations, R&R/warranty, spares, manuals, training, in-country field service representation, CONUS SME support and safety/HFE. WLSS logistics are implemented via a Web-based process control/tracking tool, including the RAID Logistics Management Information Database. The existing RAID WLSS infrastructure enables timely and effective support to the user and FSR for all RAID equipment and services. The RAID WLSS process can evolve to reflect RAID payload changes and can be leveraged to support other programs.

ISR Applications

RAID system solutions are applicable to security challenges involving persistent surveillance (e.g., vehicle-born IEDs, via analysis of recorded 24/7 video), homeland security, border surveillance, intelligence gathering and force protection missions. Netting of video data is supported by PSDS2 and DCGS.

Platform/Payload Evolution

RAID technical capability has evolved rapidly and significantly since initial deployment (Afghanistan 2003), from elevated stand-alone sensors to integrated/netted sensor systems that support precision targeting. Further evolution is envisioned through the range of RAID EO/IR sensors, radars (for airborne, land GMTI and maritime targets) and communications payloads that are available to satisfy growing mission requirements. While payload weight is generally not a limiting factor for mast and tower-mounted payloads, added weight limits the maximum aerostat altitude. In support of heavier payloads, 32m to 38m aerostat payloads are available (1,000' lb payload elevates to 2500' ASL with the 38m mobile platform).

RAID Tower Command and Control Center

Clear LOS (Visual/Communications)

Infrared, Wide FOV (2000' Range)

Infrared, Ultranarrow FOV (2.4 nmi)

RAID 17m – Preparing for Launch

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Customer Success Is Our Mission