



Relocatable Over-the-Horizon Radar (ROTHR) for Homeland Defense and Homeland Security



ROTHR provides high reliability and cost-effective wide-area coverage — from 300 miles inland to 2,000 miles off the U.S. coastline.

Benefits

- Tracks aircrafts at all altitudes and in all weather conditions
- Covers a distance of up to 2,000 nmi, regularly tracking ships with lengths greater than 100 feet
- Reduces costly airborne surveillance requirements
- Acts as a “gap filler” for air tracking and surface detection
- Supports drug interdiction and homeland defense missions
- Interoperates with all government agency communications systems
- Delivers maximum system availability for mission-critical needs
- Uses COTS hardware and spiral upgrades for lower total cost of ownership
- Offers full lifecycle services: site preparation, installation, operations, maintenance, logistics and technical documentation

2,000-Mile Surveillance
Raytheon’s Relocatable Over-the-Horizon Radar (ROTHR) is a long-range, land-based, wide-area surveillance system that reliably detects aircrafts and surface ships within designated surveillance zones off the U.S. coastline. Designed to operate without violating other nations’ sovereignty, ROTHR tracks each target’s speed, course and position with high probability.

Using proven command, control and communications, a ROTHR network can provide surveillance of up to 300 miles inland and 2,000 miles off the U.S. coastline. ROTHR is the only U.S.-based over-the-horizon operational solution and one of only two in the world that can deliver this capability.

Unique Communications Interoperability

Existing homeland defense network command, control and communications are easily integrated with ROTHR. Detected surface and air traffic by ROTHR are reported in real time to the U.S. tactical forces responsible for defending locations of national interest. Common data structures and message formats enable message traffic to be passed, received and understood by all agencies with and without ROTHR command and control capabilities.

Low Total Cost of Ownership
ROTHR’s vast coverage area increases surveillance effectiveness, while reducing airborne requirements. It is a demonstrated “gap filler” for air tracking and surface detection. And,

its long-range coverage can quickly focus to provide targeted coverage on demand. The comprehensive wide-area radar capability simultaneously supports evolving tactical, strategic and intelligence missions for homeland defense. The result is considerable savings in crew, ship, aircraft and support costs.



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Proven Technology

ROTHR has been supporting the U.S. government's counter drug mission in the Caribbean Sea and in South America for more than 15 years. It has a proven track record, detecting and tracking upwards of 8,000 targets per day — nearly three million per year.

Three sites are operational in Texas, Virginia and Puerto Rico and complement other Caribbean area coverage. Each system includes:

- Coverage of more than 2.5 million square nautical miles per radar
- 24/7/365 operation
- Extremely low operational costs
- Highly reliable operation — more than 175,000 tactical operational hours
- Networked command and control with JIATF South

State-of-the-Art System

Raytheon and the U.S. government continuously upgrade ROTHR to take advantage of operational experience and advanced processing technology. With demonstrated spiral upgrade support, the ROTHR system investment is protected, while non-disruptive enhancements maximize performance and system availability.

ROTHR is based on an open architecture and uses the latest generation commercial-off-the-shelf (COTS) technology. Recent upgrades include:

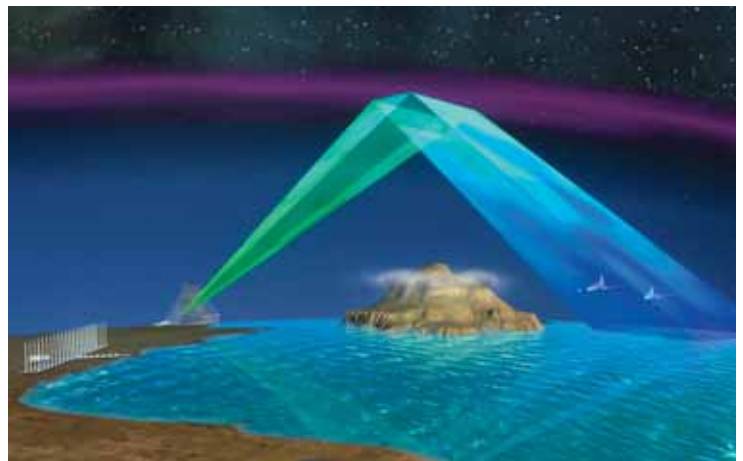
- Increased computer throughput of 500 percent
- Improved performance over a wide range of ionospheric conditions
- Increased system angular coverage to 100 degrees
- Expanded nautical mile range to 2,000

Full Lifecycle Services

Full lifecycle services are part of the ROTHR system. Site preparation, installation, maintenance and operations support are provided. Raytheon's Integrated Logistics System (ILS), which has been in use by the U.S. Navy for the past 14 years, is also available. Additionally, comprehensive and up-to-date system, maintenance and operational manuals are provided.



Additional ROTHRs can provide layered coverage in critical areas. This layered approach is especially useful in Homeland Security and Homeland Defense missions, including air, maritime, cruise missile and other alternative tasking requirements, by providing range and aspect diversity to optimize radial speeds, radar cross-section and propagation conditions.



The transmitted ROTHR signal bounces off the ionosphere to track targets over the horizon. Operators select the transmitted frequency and waveform to optimize performance to the target range and type. ROTHR's performance is unaffected by weather conditions or terrain.

Raytheon Company
Integrated Defense Systems
50 Apple Hill Drive
Tewksbury, Massachusetts
01876 USA

www.raytheon.com

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