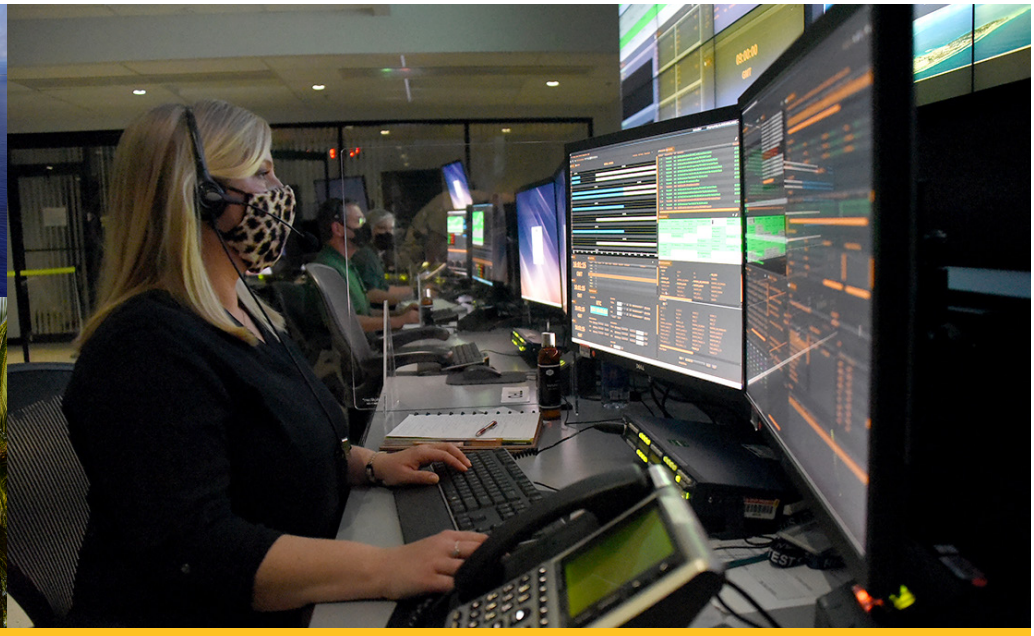
U.S. ARMY

RONALD REAGAN SPACE AND MISSILE TEST RANGE DISTRIBUTED OPERATIONS (RDO)



A transformational program that fundamentally changed mission execution and operations at the Reagan Test Range to fully support distributed viewing and control

The Ronald Reagan Space and Missile Test Range is a world-class range and test facility located 2,300 miles west-southwest of Hawaii at U.S. Army Garrison-Kwajalein Atoll, Republic of the Marshall Islands.

Its unique instrumentation, including high fidelity metric and signature radars, as well as optical and telemetry sensors, play a vital role in the research, development, test and evaluation required to support America's defense and space programs.

While this distance and isolation make it ideal for safety and/or operational reasons, the remote location increases transportation time and cost. Remote, distributed operations mitigate these issues and make the range more accessible for more customers.

- More than 60 years of successful RDT&E for space and missile programs
- Fully integrated telemetry, optics and radar instrumentation suite is unmatched in the world at collecting metric and signature data on missiles and space objects
- 24/7 capabilities for space reconnaissance and surveillance operations
- Continuous modernization efforts allow Reagan Test Range to remain a vital national asset and a critical component of the Pacific Range Complex

REAGAN TEST RANGE-RDO

PROGRAM GOALS

The Ronald Reagan Space and Missile Test Range Distributed Operations program transformed the Reagan Test Range from a locally operated range to a globally operated national asset.

Started in 2006, the RDO program created an enhanced control capability that leverages high-speed networks, advanced algorithms and sensor control technology to enable range operation from distributed continental United States enclaves. The RDO project focuses on:

- Increasing information availability with reliable, high bandwidth communications
- Distributing mission tasks among various locations
- Seamless remote operation of range sensors
- Improving range accessibility for customers
- Enhancing interoperability with customers, other ranges, sensors, and elements.

The command and control facility, the Reagan Test Site Operation Center-Huntsville, was established by the U.S. Army Space and Missile Command in Huntsville, Alabama, in 2012.

CUSTOMER BENEFITS

The RDO program benefits Reagan Test Range customers in several key ways. System engineers and mission planners are centrally available in Huntsville, co-located with several major range customers, reducing costs and time associated with training, demonstrations, mission planning and mission execution than was experienced with Kwajalein-based range support.

Availability of data, both real-time and post-mission, has been greatly improved with customers able to view their mission in real-time as it unfolds from the control center facility in the U.S. The reduced cost and convenience also has enabled customers to allow more of their engineering and operations personnel to view and conduct missions.

Given the affordability of U.S. terrestrial networks, the ability for customers to view the mission from their own facility is becoming possible. Quick-look data products and post-mission analysis will both experience reduced timelines due to improved data transfer speeds. Customers can also refine the set of personnel they deploy to Kwajalein. Given the ability to view the mission in real-time from the control center, only those mission support functions requiring access to physical assets need to deploy to Kwajalein. Customers realize cost savings by deploying less personnel.

HIGH SPEED RELIABLE NETWORK

Continued RDO communications upgrades focus on the core networking and communications infrastructure linking Kwajalein to the United States. Refining the reliable, high bandwidth, low latency network is crucial to maintaining the distributed range concept in which the sensors are operated from 7,300 miles away.

A high bandwidth fiber optic cable was installed between Kwajalein and the United States in 2010 to complete the terrestrial fiber path. Reliability is improved through a fault tolerant design with diverse physical paths. The initial networking capability to the U.S. supported 620 Mbps bandwidth and low latency, with higher bandwidth on the horizon.

ADVANCED ALGORITHM AND SENSOR CONTROL

Distributing Reagan Test Range operational control center activities was achieved by developing software that enabled the system to be controlled by multiple operators at various locations. A key advantage of a distributed center is a common environment, which allows better utilization of personnel through streamlining operations. The range's sensors continue modifications to further facilitate distributed, and eventually automated, operations and to reduce operation and maintenance costs. Remote monitoring, diagnostics, and operations of the sensors are made possible with live video feeds, environmental and physical monitoring sensors, web-based diagnostic tools and programmable logic controllers.

For more information, please contact: USASMDC Public Affairs Office

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