

# RONALD REAGAN SPACE AND MISSILE TEST RANGE AT KWAJALEIN ATOLL (RTS)



*Serving as the premier space and missile test range for the Department of War*

**With over 60 years** experience successfully supporting ballistic missile testing and space operations, the U.S. Army Space and Missile Defense Command Technical Center's Ronald Reagan Space and Missile Test Range, located at the U.S. Army Garrison-Kwajalein Atoll, Republic of the Marshall Islands in the Central Pacific Ocean, conducts 24/7 space operations to provide space situational awareness and the protection of key space assets supporting U.S. Central Command, U.S. Pacific Command and U.S. Northern Command. Radar, optical and telemetry sensors on the atoll support missile testing, missile launches, space reconnaissance and surveillance operations, and science experiments for the Department of Defense and other government agencies. The instrumentation, strategically situated on the atoll, collects metric and signature data for characterizing missile and satellite systems. In addition, the Reagan Test Range is ideally located for observation of new foreign launches and low-inclination satellite orbits. It serves a vital role in space operations with U.S. Space Command and in research, development, test and evaluation for America's defense programs for U.S. Strategic Command. The range is operated by a team of Army personnel, government civilians, technical support contractors, and scientists from MIT Lincoln Laboratory. Its isolated location in the western equatorial Pacific region uniquely qualifies Reagan Test Range for supporting rigorous and realistic tests of all missile classes and intercept scenarios as well as space operations.

- Conducts research, development, test and evaluation space and missile programs and continuous space reconnaissance and surveillance operations
- Flexible electromagnetic and environmental constraints
- The fully integrated telemetry, optics and radar instrumentation suite is unmatched in the world at collecting metric and signature data on missiles and future systems
- More than 60 years of successful missile testing and 20+ years of space ops
- Continues to be a vital national asset and a critical component of the Pacific Range



The dependable Reagan Test Range sensor complex is unparalleled in its ability to provide quality truth data on offensive and defensive missile tests. Its instrumentation sensors work synergistically to provide thorough coverage for missile and space operations. They are designed to readily adapt to new user requirements and demonstrate new technologies for the Ballistic Missile Defense System. The major mission areas and sensor complex are described briefly below.

## SPACE OPERATIONS

The Ronald Reagan Space and Missile Test Range supports the U.S. Space Command Space Surveillance mission, U.S. Air Force space programs, NASA space transportation system operations and experiments, Defense Advanced Research Projects Agency programs, Department of War programs, national space launches and post-launch combat assessment support, U.S. Space Command, and U.S. Space Force.

- With first visibility of most launches out of Euro-Asia, Reagan Test Range sensors provide critical orbital information on new foreign launches in support of the U.S. Space Command.
- Space Operations utilizes two, deep-space tracking radars and is the only radar site capable of covering not only one-third of the world's geosynchronous belt, but also the entirety of the geosynchronous belt over Euro-Asia for the Space Surveillance Network.
- Two wideband radars routinely provide high-resolution images in support of the Space Surveillance Network and the National Air and Space Intelligence Center space reconnaissance missions.
- The Reagan Test Range supports space surveillance with 24/7 operations.

## LAUNCH OPERATIONS

The Reagan Test Range is uniquely located at 9 degrees north of the equator allowing for efficient equatorial space launches. Kwajalein's broad ocean area provides for space launches to the east capitalizing on the rotational velocity of the earth. Space launches into geosynchronous orbit, the most significant commercial orbit, require a smaller plane change than other launch sites. Due to the scarcity of population centers, the range has the capability to launch into nearly any orbit—from equatorial to polar—with minimal delta-v post launch.

## MISSILE TESTING

The Reagan Test Range has more than sixty years of experience supporting missile testing for the Army, Navy and Air Force.

- Isolated location minimizes environmental and safety constraints on missile test scenarios and permits control of the radio frequency spectrum
- Supports land impact targeting, vehicle recovery from the world's largest lagoon, or disposal in the deep ocean
- Supports full spectrum of programs including Patriot, THAAD, AEGIS, ground-based missile defense testing, Flexible Target Family, and the Hypersonic Test Vehicle as a key element of the Pacific Range.

## REAGAN SPACE AND MISSILE TEST SENSOR COMPLEX

The integrated complex of state-of-the-art Reagan Test Range sensors include the following:

- Four high-power instrumentation radars provide the highest quality metric and signature data available in the world. The RF frequency spectrum is covered by narrowband sensors at VHF, UHF and L-band; and wideband sensors at S-band, C-band and Ka-band. Three C-band beacon-tracking radars provide long-range metric tracks of instrumented targets.
- Five high-performance telescope mounts can support customer-supplied optics in addition to numerous large-aperture infrared and visible telescopes. Digital high-resolution and high-speed camera systems capture metric and signature data on missiles and satellites. Dispersed sensor locations and accurate radar pointing provided via the control center ensure reliable data collection on objects of interest. Documentary cameras augment the instrumentation-quality assets.
- Instrumented vehicles downlink critical on-board data to nine land-based and three ship-based telemetry auto-tracking antennas. S-band and L-band downlink frequencies are supported. The systems are capable of demultiplexing and decommutating all standard telemetry modulations. Translated GPS Range Systems support precision tracking of translator-equipped vehicles.

The Reagan Test Range provides a comprehensive infrastructure to meet customer needs. Launch facilities support space launch as well as scientific, tactical and strategic missile launches. A fiber optic connection facilitates distributed operations from CONUS for easy customer access to real-time and post-flight data. The Reagan Test Range Operations Center-Huntsville in Alabama, provides an integrated facility to conduct space operations, the BMDS mission, space launch and future joint operations.

The Ronald Reagan Space and Missile Test Range continues to be a vital and strategic national asset.



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