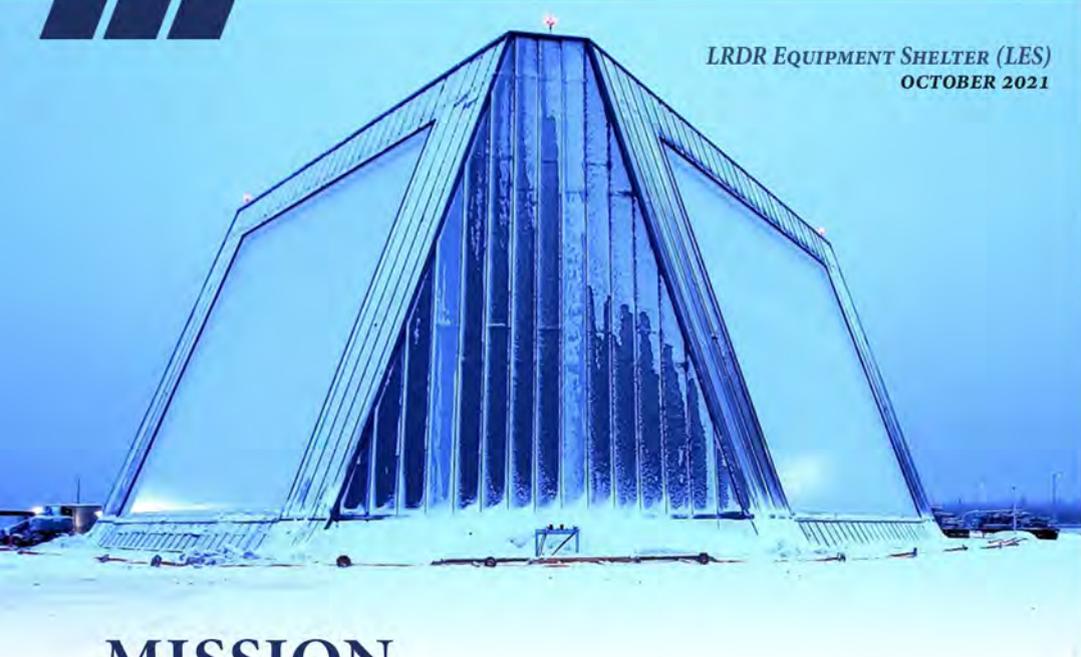# LONG RANGE DISCRIMINATION RADAR (LRDR)
## CLEAR SPACE FORCE STATION (CSFS), ALASKA



*LRDR Equipment Shelter (LES)*
**OCTOBER 2021**

## MISSION

*Provide persistent long-range midcourse discrimination, precision tracking and hit assessment to support the 2020 Homeland Defense Capability against long-range missile threats in the Pacific theater. Long Range Discrimination Radar (LRDR) contributes to the Missile Defense Agency (MDA) mission of developing and deploying a layered Missile Defense System (MDS) to defend the United States from ballistic missile attacks of all ranges, in all phases of flight.*



U.S. SPACE FORCE
Clear Space Force Station

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*Long Range Discrimination Radar (LRDR), located in Clear, Alaska, is designed to provide the warfighter advanced sensor capabilities, supporting a range of requirements from missile warnings through tracking and discrimination, to space domain awareness. Once operational, LRDR will provide an unparalleled ability to simultaneously search, track, and discriminate multiple objects, including all classes of ballistic and hypersonic missiles, at very long ranges, 24/7/365. LRDR combines proven solid-state radar technologies with proven ballistic missile defense algorithms, all based upon an open architecture platform capable of meeting future growth. What sets LRDR apart is the ability to accurately identify threats in a dense operating space, massive arrays each measuring 60 feet high and 60 feet wide, and gallium nitride technology for a more poerful, more capable radar. This technology was designed to be:*

▸ Adaptable for Future Threats: The radar can be scaled and extended to adapt to new threat sets, like hypersonic threats, without changing the hardware design.

▸ Efficient and Reliable: Scalable and modular gallium nitride based "subarray" radar building blocks provide advanced performance and increased efficiency and reliability.

▸ Persistent Track and Discrimination: Its unique maintain-while-operate capability provides very high operational availability and enables continuous operation.

▸ Multi-mission capability: LRDR is a multi-mission, multi-face radar capable of conducting missile defense and space domain awareness (SDA) missions through a wide field of view. LRDR tracks and discriminates multiple threats simultaneously, providing precision track and discrimination data to Missile Defense System (MDS) firing units such as the Ground-Based Midcourse Defense (GMD) System. For SDA, LRDR can monitor satellites orbiting the earth, detecting, tracking, and identifying active/inactive satellites, spent rocket bodies, or debris.

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CEMENT TRUCKS

*4,100 cubic yards (cy) of cement was placed in 19 hours for the radar foundation at CSFS, which is the second largest continuous concrete pour in the state of Alaska, averaging approximately 243 cy/hr.*



7 HOURS INTO PLACEMENT



COMPLETION OF PLACEMENT AFTER 19 CONTINUOUS HOURS

*Each array measures 60 feet high by 60 feet wide.*



SECONDARY ARRAY RADOME UNDERGOES WEATHER SEAL TEST

*LES: The white structures are Array Assembly Areas that were used for environmental protection during radar installation.*

## OVERVIEW

*LRDR will provide persistent long-range midcourse discrimination, precision tracking and hit assessment to support the Homeland Defense Capability against missile threats to the homeland and in the Pacific theater.*

- The LRDR will operate in S-band frequencies featuring a scalable, open systems architecture to mitigate evolving threats. The LRDR will be integrated into the MDS through the Command and Control, Battle Management and Communications (C2BMC) element.

- LRDR's enhanced discrimination - the ability to identify specific lethal objects in a dense target environment - will increase the efficiency and capacity of the homeland defense interceptor inventory by minimizing the number of Ground-Based Interceptors required for threat engagement.

## KEY FEATURES

- Solid state, phased array, S-band, 2-faced radar
- Scalable, open system architecture enables incremental approach to address evolving threats
- MDS integration and remote operations via C2BMC
- Enables conservation of Ground Based Interceptor (GBI) inventory
- Supports Space Domain Awareness and other secondary mission areas

MISSILE DEFENSE AGENCY

## Long Range Discrimination Radar (LRDR)

MISSILE DEFENSE AGENCY