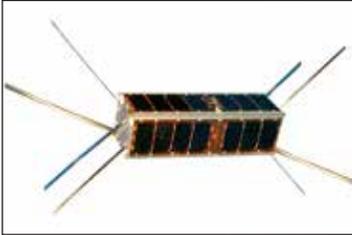




# TC

*Technical Center*



USASMDC/ARSTRAT Technical Center researches, develops, tests and integrates capabilities for materiel solutions in tactical space, missile defense, cyberspace, directed energy and other areas of technology

The Technical Center focuses on providing critical technologies that meet today's requirements and addressing future needs enabling Warfighter effectiveness in the core competencies of directed energy, tactical space, high altitude systems, cyberspace and missile defense. TC plans and executes test and evaluation programs, and performs related analyses in the areas of high energy lasers, hypersonic weapon systems, targets, and strategic missiles. TC also supports operational elements, a field mature technology, works counter improvised explosive device efforts, and operates the Reagan Test Site whose focus is on the test of missile defense systems, intercontinental ballistic missile performance and space surveillance and identification defense systems operations. To accomplish its goals, the TC pursues numerous technical cooperatives and partnerships with international organizations, academia, industry and other government agencies.

- Provides critical technologies in the areas of directed energy, tactical space, high altitude systems, cyberspace and missile defense.
- Pursues technology development from applied research to address Army requirements.
- Actively transitions mature technology to meet Warfighter, Department of Defense and national security needs.
- Pursues opportunities for cooperation and partnerships with academia, industry, international and other government agencies.
- Operates DoD Major Range and Test Facility Base at Kwajalein Atoll in the Republic of the Marshall Islands.

The Technical Center advances technology research and development for the Army, Department of Defense, U.S. Strategic Command, Missile Defense Agency and other defense-related government organizations in the following areas:

### Directed Energy

The TC is the Army lead in high energy laser technology development. TC current focus is on the High Energy Laser Mobile Demonstrator that is traceable to the form, fit, and function requirements of the future force with potential application to the counter unmanned aerial vehicle and counter rockets, artillery and mortars missions. In addition to HEL MD, TC focuses on directed energy in the following areas: high power solid state lasers, high energy laser beam control, atmospheric compensation, laboratory, lethality and field testing, integrated demonstrations, and basic research.

### Tactical Space Technologies

As the Army lead for space research, development and engineering, TC identifies, develops, demonstrates and integrates space technologies in the areas of responsive space and space superiority. To meet Army operational needs, focus areas include persistent beyond line-of-sight communications for forces deployed in remote areas via small satellites; functionally effective resolution imagery via small satellites; ground command and control systems to reduce operator burden; direct down-link of tactical data feeds; and low cost, small satellite launcher system.

### High Altitude Systems

The TC supports the command's role as the Army's proponent for high altitude by developing and transitioning technologies to meet Warfighter needs for high altitude persistent platforms. The TC develops tactically deployable, unmanned, high altitude, heavier-than-air and lighter-than-air platforms capable of hosting a variety of payloads. These platform and payload technologies provide persistent communications and intelligence, surveillance and reconnaissance to the tactical Soldier.

### Cyberspace

The TC cyberspace division is working solutions to innovatively protect the transport of data throughout the transmission and receipt cycle of space and high altitude assets. The TC is working to make space and high altitude assets and the end-to-end data transport system as resistant as possible to attack from any source at any point and survivable in any environment. The USASMDC/ARSTRAT cyberspace technologies will ensure that all Soldiers can receive critical information when they need it and that it has not been corrupted or intercepted by enemies. Additionally, the TC is developing cyber vulnerability assessment programs that will use standard system engineering methodology to provide an overall critical assessment of cyber vulnerability and potential mitigation strategies for candidate systems or technology development and its associated networks.

### Missile Defense Technology

The TC supports missile defense in the following areas: seekers, guidance and control systems, propulsion systems, composites and advanced materials, and Integrated demonstrations.

### Counter Improvised Explosive Device

Counter IED research develops new methods to locate and track IED supply lines, creates specialized tools for forensic analysis and safety, and utilizes new high power microwave sources for IED interdiction. TC provides methods of forensic analysis of captured detonators and IEDs to provide U.S. forces with the ability to locate supply routes, depots and suppliers. Other areas of counter IED research include: high power microwave devices, pulsed power devices, IED forensics, and electromag-

netic hardened electronics.

### TC Laboratories

TC laboratories, such as Concepts Analysis Lab, Army High Energy Laser Lab, Aerophysics Test Facility, Space Data Exploitation Lab, and Advanced Measurements Optical Range, are used to develop, test and mature technology solutions for the Warfighter.

### Test and Evaluation

Areas of expertise include: test range operations, test planning and execution, test resource management, and analysis of data for missile defense testing. Examples of TC T&E capabilities include:

- *25K TTL*: The Flight Division has two deployable launchers capable of launching 25,000-pound maximum static load rockets. The design is supportive of launching an array of existing and future concept rockets. These configurable rail launchers are over-road, C-5 and C-17 transportable. The use of the 25K Transportable target launcher provides world-wide test capabilities.

- *Short Range Ballistic Missile Development*: SMDC is developing a suite of low-cost ballistic missiles for use in Developmental and Operational Air and Missile Defense testing. These ballistic missile targets are focused on meeting threat representative performance, signature and launch geometry requirements.

- *Test Execution Support*: Provides full test and evaluation services including air breather and ballistic missile targets. Services include: radar characterization, six degree of freedom, pre- and post-test data analysis and post-test debris lethal effectiveness analysis.

- *Reagan Test Site (RTS)*: RTS in the Republic of the Marshall Islands is located 9 degrees north of the equator allowing for efficient equatorial space launches and also for first visibility of foreign space launches from Asia. The latter provides critical orbital information on foreign space objects in support of USSTRATCOM. At RTS, customers can test and gain data to evaluate all phases of space and missile research and development using an unmatched telemetry, optics and radar instrumentation suite to collect high fidelity metric and signature data both remotely and globally. The RTS' Distributed Operations Center transformed RTS from a locally operated range to a globally operated national asset. The new command and control facility (the RTS Operations Center in Huntsville, Ala.) became the range's primary test and space operations command-and-control facility in 2012.

### Rapid Transition

Provides innovative capabilities to rapidly assess operational concepts. The TC's goal is to demonstrate, evaluate, transition and transfer the best technology solutions to meet Warfighter needs. Examples include the Light Guard Minotaur system and Advanced Hypersonic Weapon (prompt global strike program). LightGuard provides stand-off detection of homemade explosives in an operational environment. AHW, a first-of-its-kind glide vehicle, designed to fly within the earth's atmosphere at hypersonic speed and long range, completed a successful first flight test from the Pacific Missile Range Facility in Kauai, Hawaii, in November 2011.



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