



## TC

U.S. Army Space and Missile Defense Command Technology Center



### Summary

- Manages space, high-altitude, directed energy, missile defense, and cyberspace technology research and development
- Pursues technology development from applied research to technology demonstrations that addresses Army and Joint Warfighter requirements
- Provides quality technology services that are tailored to meet emerging Warfighter needs for the Army and other DoD services and agencies
- Actively seeks ways to transition mature technology into material development to meet Army and national security needs
- Pursues opportunities for cooperation and partnerships with international, academia, industry and other government agencies

**The US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMD/ARSTRAT) Technology Center develops and transitions space, high-altitude, directed energy, cyberspace and missile defense technologies.**

The Technology Center is focused on providing the Warfighter critical technologies that meet today's requirements and address future needs. Technologies are developed to enable Warfighter effectiveness in the areas of space, high-altitude, directed energy, missile defense and cyberspace. The Technology Center actively looks for ways to leverage these technologies into other areas that support the Army and national security. Numerous opportunities for technical cooperatives and partnerships with academia, industry, and international organizations are pursued. The Technology Center also manages the Concepts & Analysis Laboratory (CAL), which assists with analysis, assessment and development of innovative technological concepts and solutions across multiple USASMD/ARSTRAT mission areas.

## U.S. Army Space and Missile Defense Command Technology Center

The Technology Center advances technology research and development for the Army, DoD, USSTRATCOM, Missile Defense Agency, and other defense-related government organizations in the following areas:

### Space Technology

As the Army lead for space research, development and engineering, the Technology Center identifies, develops, demonstrates and integrates space technologies in the areas of space superiority and force enhancement. The Operationally Responsive Space/Tactical Satellite Program provides an opportunity to influence payloads with potential to deliver operationally relevant capabilities to the Army. The Vertical/Horizontal Integration of Space Technologies and Applications (VISTA) provides relevant near real-time space products and services for on-the-move Warfighters. To support space technology development, the internal Space Product Development Laboratory conducts technology development, component integration and testing in support of Army space technology applications.

### High-Altitude (HA)

High Altitude core competencies include both lighter-than-air (LTA) and heavier-than-air (HTA) technologies. LTA airship efforts are the High-Altitude Long Endurance-Demonstrator (HALE-D) and the Hi-Sentinel80 Airships, while the HTA aircraft effort is the Orion Unmanned Aerial System (UAS). High altitude exploits the aerial layer above 60,000 feet, a region of benign wind activity. Airships at this altitude can loiter for long durations providing a satellite-like capability of specific regions or areas of interest. Airship design is tailored to payload and power requirements and duration needed to conduct the mission. The Orion aircraft is a hydrogen design that provides up to four days of endurance at high altitude capable of carrying heavy payloads with ample power to meet mission requirements. High Altitude systems are capable of long duration persistence thereby providing continuous communications or intelligence, surveillance and reconnaissance (ISR) stare capability to the disadvantaged user on the battlefield and for Homeland Defense Applications.

### Directed Energy

TC is the Army lead in High Energy Laser Technology development. TC current focus is on a mobile High Energy Laser Technology Demonstrator (HEL TD) that is traceable to the form, fit, and function requirements of the future force with potential application to the counter rockets, artillery and mortars mission. TC has demonstrated the first ever 100 kilowatt solid state laser

and is integrating it into a solid state laser test bed experiment (SSLTE) for conducting static and dynamic lethality tests, beam propagation experiments, and HEL mission assessments at the High Energy Laser Systems Test Facility (HELSTF). To support High Energy Laser development, the High Energy Laser Laboratory allows the TC to conduct cost and risk reduction experiments supporting the development and deployment of future Army directed energy weapon systems. There is also a comprehensive high power microwave technology development and test effort to counter improvised explosive devices.

### Missile Defense

The Technology Center supports missile defense in the areas of advanced technology, sensors, and electronics development. Research areas include weapons component development, integration, performance, and life cycle design. One of the primary vehicles for this research is managing the Missile Defense Agency's Small Business Innovative Research efforts as well as various congressionally directed efforts. Development of new interceptor technologies, composites and advanced materials, and systems, such as Low Cost Interceptor, is also a major focus of the division. Also in development is a next-generation, all digital radar architecture that performs analog to digital conversion and waveform synthesis of the transmit/receive module level.

### Cyberspace

The Technology Center is developing an Army Cyberspace Center of Excellence to evaluate supply chain risk and vulnerabilities of Army systems. This effort will identify and examine processes to conduct evaluations of system supply chain risk in terms of: identifying active components, checking for counterfeit components, evaluating embedded software; determining susceptibility of acquisition process, and identifying trusted contractors/subcontractors.



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