

# SPACE SYSTEMS INTEGRATION LAB (SSIL)



*Provide virtual and distributed environments for the integration, demonstration and spiral development of technology for enabling technologies and fielded space systems.*

**The Space System Integration Laboratory** is a government-owned and -sustained facility that allows industry, academia and government customers to collaborate, integrate, test and analyze space, high-altitude, and ground-based systems, as well as science & technology payloads.

The laboratory environment provides 2200+ square feet of testing and integration space as well as access to various networks at the classified and unclassified levels. In-house expertise on orbital assets, systems for ground-based effects, and high-altitude platforms can be leveraged to support the development of components, constellations, and all tactical space applications.

This integrated laboratory environment allows developers, program managers, integrators, testers and analysts to work together on model development, system integration and interoperability testing, effects testing and analysis, validation and verification, and warfighter training for space and high-altitude systems in a multidomain operations environment.

- Reliable Expandable Satellite Testbed (REST) provides bus-level hardware-in-the-loop simulation.
- Modeling and simulation capabilities to enable the integrated analysis of ground, sea, high-altitude and space systems.
- Permanent-class 10,000 (ISO 7) cleanroom with electrostatic discharge-enabled workstations.
- REST – integrated Helmholtz Cage for HWIL magnetic field testing.
- Coordination of live, virtual and constructive testing on space assets and ground-based systems.



USASMDC serves as an Army Service Component Command to U.S. Space Command, to U.S. Northern Command for its ground-based midcourse defense mission and to U.S. Strategic Command. The command is the Army's force modernization proponent and operational integrator for global space, missile defense and high-altitude capabilities. It has a unique perspective on the convergence of space and high-altitude multidomain operations and the role it plays in integrated deterrence.

Home to the Technical Center, Space and Missile Defense Center of Excellence, the 1st Space Brigade, and the 100th Missile Defense Brigade, the command sits poised to provide subject matter expertise on tactical space research and development, operations, and training.

USASMDC's Space Systems Integration Laboratory aims to maintain space superiority and anticipate future capability gaps in persistent communication; intelligence, surveillance and reconnaissance; force protection; and situational awareness.

With a rich history in space system development, USASMDC's SSIL is able to provide subject matter expertise, as well as facilitate access to antenna farms and ground station facilities; modeling



and simulation capabilities; International Organization for Standardization-certified clean rooms; and a live, virtual, constructive environment for relevant components and systems.

Capabilities such as the autonomous GNSS performance and threat environment simulator system coupled with a software-defined GNSS simulator enables closed loop hardware, software, and waveform validation for navigation warfare situational awareness and attack efforts.

#### RELEVANT AREAS

- Navigational warfare situational awareness and attack efforts

- Satellite component, demonstrator and constellation development, testing, and integration

- High-altitude payload development, testing and integration

- Position, navigation and timing specific efforts

- Tactical aerospace-specific modeling and simulation

- Space multidomain operations environment enabling live, virtual and constructive simulations

- Cyber resiliency of space and high-altitude assets



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