SYSTEMS ENGINEERING RESEARCH CENTER | AIRC ACQUISITION INNOVATION RESEARCH CENTER | SERC RESEARCH REVIEW 2026

Spectrum Advanced Training Technology Laboratory (SATTL) – WRT-2621

An overview of SATTL testing, verification, and MOSA/SOSA architecture resources available to Principal Investigators across the SERC enterprise

I/ITSEC and SERC Annual Research Review
National Security Institute @ Old Dominion University

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CORE MISSION & SUPPORT SPECTRUM

Spectrum Modernization

Assesses and matures spectrum management prototypes while addressing dynamic spectrum sharing and interference challenges across the mid-band.

Independent V&V

Provides rigorous testing, verification, and validation for Electronic Warfare (EW) emitters, simulators, and software, from design through fielding.

Open Architecture

Drives Modular Open Systems Approach (MOSA) and Sensor Open Systems Architecture (SOSA) alignment across Joint EMSO systems, interoperable with DoD LVC training environments and IEEE and NIST standards.

SATTL CORE INFRASTRUCTURE

EMSO Makerspace

Rapid prototyping environment for hardware- and software-in-the-loop integration and EMSO concept validation, with range-representative RF environments (emitter, receiver, ambient) for small and mid-sized developers.

IV&V Facility

Scalable, agile test activities delivering rapid, risk-based evaluation for software and hardware. Accomplished with world class testers using state of the art system Integra ion labs and on-site data collection.

Data/Software Repository

Secure storage, distribution, minor code updates, and lifecycle management for EMSO software, including post-production configuration control and formal software releases.

Live-Virtual DoD Environment

Immersive virtual construct replicating real-world joint training environments, interoperable with DoD LVC training architectures.

Secure IT & CUI Compliance: CUI-compliant network and Microsoft 365 GCC High cloud under ISSM oversight, aligned with CMMC and NIST SP 800-171

SATTL RESEARCH VECTORS

Interference Mitigation

Real-time signal processing and adaptive filtering algorithms to preserve radar and communication signal integrity.

EW Simulation & Verification

Development of high-fidelity sets of virtual threat emitters models and simulations, electronic attack simulators, and target generators.

Automated Spectrum Management

Machine-learning assisted frequency allocation and automated deconfliction for tactical networks.

Systems Engineering for Spectrum Modernization

Rigorous model-based systems engineering methodologies applied to characterizing complex Joint Electromagnetic Spectrum Operations (JEMSO) environments.

Applied RDT&E (6.4 to 6.8): synthetic LVC ranges, multi-modal sensor placement tools, spectrum and telemetry data fusion, and range digital twins

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CONNECT & COLLABORATE

Explore facility access, include SATTL testing in upcoming proposal budgets, or schedule a technical briefing with the engineering team.

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