



## TESD

*Test Execution Support Division*



The Test Execution Support Division supports operational missile defense weapon systems with development, integration, and execution of flight and ground test programs

The Test Execution Support Division, within the Technical Center, offers technology and value-driven capabilities for testing and evaluation to support the development and operational testing of integrated missile defense weapon systems. The division provides end-to-end flight test planning, design, development, integration and test execution, as well as flexible launch platforms and unique low-cost target solutions. The vision of the TESSD is to provide integrated missile defense testing solutions through a diverse supplier base, and tailored development strategies focused on meeting requirements on time and at an economical cost to the user – the Warfighter.

- Full Service: Planning, coordination and execution of flight and ground tests
- Tailored Solutions: Launch platforms
- Cost Saving Options: Economical targets
- Payloads - Custom re-entry vehicles: lethality-driven payloads, threat representative, full suite of instrumentation
- Data Collection: Ultra-high data rate telemetry/optics/infrared on mobile platforms
- Data Analysis: Trajectory, range safety, and link margin analyses and post-test data analysis at fidelity customized to the requirement

The Test Execution Support Division develops assets and executes test and evaluation (T&E) programs responsive to the needs of U.S. and allied Warfighter.

- **End-to-End Service and Program Control:** The TESD team members address all aspects of flight and ground testing, from initial test concept development through intensive planning, acquisition, test execution, and mission wrap. Team engineers, analysts, and range technicians work all aspects of the effort, providing a unified experience for the customer. In addition to relying upon range and system under test infrastructure, the TESD fields mobile flight and ground test telemetry and instrumentation units, effectively reducing logistics costs for division customers while providing independent and validated performance data sources.

- **Innovation:** The TESD provides clean-sheet solutions to address limitations in U.S. T&E capabilities. This division brings customer requirements to fruition, improving the testing regime of systems for the Warfighter.

#### – 25K Transportable Target Launcher (25K TTL)

The division developed two 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 and C-17 and C-5 transportable thus providing worldwide deployment capability. Their mobility allows unique launch positioning of test articles facilitating unique kinematic geometries. This pair of launchers enables simultaneous launches and provides new dynamics for testing a system's sensors and system performance.

#### – Economical Targets (ET-1)

The Economical Target-1 is the first in a line of low cost test articles designed to supplement waning flight test inventories and provide a cost-effective alternative to expensive high-fidelity test articles. The ET-1 is focused on lot acceptance and aging and surveillance testing. Additionally, ET-1 can serve as an effective low-cost sensor characterization article. This approach leverages existing in-production rocket motors and has a production cost goal of less than \$500,000. A flexible architecture permits en-

hanced kinematic capabilities and signature tailoring in future versions while maintaining economical per round costs.

- **Payloads: Custom Re-entry Vehicles**

The payloads program is centered on providing responsive solutions to customer needs. Photonic hit grids are available enabling end-game reconstruction of the test article and interceptor collision. Customized internal payloads, including high-fidelity threat-based payload surrogates are also available. Innovative and validated instrumentation, including time-of-arrival sensors, explosive reaction sensors, and rupture gauges are also available. To ensure the data reaches the ground, sensors can be integrated with vehicle telemetry and have stand-alone post-intercept transmission.

- **Data Collection: Telemetry/Optics/Infrared**

The division offers resource support for test events including four transportable telemetry stations operable from unimproved sites. These can be operated stand-alone or integrated with range or other systems. Integration with infrared and optical sensors (cueing) capability is currently being developed. The division's mobile telemetry is capable of supporting very high data rate with the ultra-low bit error-rates required for reliable hit point detection data capture.

- **Data Analysis: 6-DoF, Trajectory, Pre/Post Test**

The division performs trajectory, range safety, and link margin analyses as well as post-test data analysis at fidelity customized to the requirements.

From planning, development, instrumentation, launch services, data collection and data analysis, the division's goal is to provide full service to Operational Weapon System Development and Testing through rigorous event-driven processes, lowered cost and custom requirements-based engineering.



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