



## ET-1

### *Economical Target*



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

The Economical Target-1 (ET-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 designed for lot acceptance and aging and surveillance testing. Additionally, the 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 enhanced kinematic capabilities and signature tailoring in future versions while maintaining economical per round costs.

- Leverages existing technology and hardware to enable a new target configuration
- Conducted ground and flight testing to establish the ET-1 vehicle as a range-approved target
- Provides a cost-effective alternative to existing targets for use in Missile Defense System testing
- Fill capability gaps for threat representative targets

## TESD Summary

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

- **End-to-End Service and Program Control:** 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. 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 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 through products such as low-cost targets and 25K TTLs.

- **25K Transportable Target Launcher:** The TESD currently developed two launchers capable of launching 25,000-pound maximum static load rockets. The configurable rail design is supportive of launching an array of existing and future concept rockets. This pair of launchers enables simultaneous launches and provides new dynamics for testing a system's sensors and system performance.

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

The payloads program is centered on providing responsive solutions to customer needs. Available features include photonic hit grids enabling end-game reconstruction of the test article and interceptor collision; customized internal payloads, and innovative and validated instrumentation.

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

The TESD offers resource support for test events including four transportable telemetry stations operable from unimproved sites, which can be operated stand-alone or integrated with range or other systems.

- **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.

## ET-1 Specific Data

The Test Execution Support Division 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 division 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.

- ET-1 is a threat representative tactical ballistic missile target that reduces test costs while providing high fidelity, configurable threat representation to Operational Test and Evaluation (OT&E) systems. This will allow for increases in the number of OT user training opportunities with added threat realism.

- ET-1 provides the following improvements to the T&E of the System Under Test:

- Provides a lower cost target solution for more OT opportunities
- Streamlines test operations and requires fewer resources than existing targets (e.g., PATRIOT-as-a-target)
- Provides a more threat representative target due to an all-metal casing and configurable nose section

- ET-1 will be used in operational testing, training, lot acceptance, annual service practice, and other testing of U.S. missile defense systems.

- ET-1 is based on flight proven designs using commercial off the shelf fins and government furnished motors combined with specially tailored forebody and tail can sections, which allow variances in on-board instrumentation and radar cross-section signatures.



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