



## Ballistic Missile Defense Testing

The Missile Defense Agency's test program provides critical data to demonstrate the operational effectiveness, suitability, and survivability of the Ballistic Missile Defense System (BMDS) and its elements. Testing also contributes to U.S. non-proliferation goals by sending a very credible message to the international community on our ability to defeat ballistic missiles in flight, thus reducing their value to potential adversaries.

### System-Wide Approach

- Testing is a continuous, evolutionary process that encompasses both developmental and operational activities.
- The test process begins with comprehensive testing of individual system elements and components and progresses to end-to-end testing of the integrated system as a combination of interceptor and sensor systems linked by a sophisticated command and control architecture.
- Test results are analyzed and injected back into the test process to further refine system testing.
- As testing progresses, each test builds on knowledge gained from previous tests, adds increasingly challenging objectives, and becomes more operationally realistic.

### Models and Simulations

- The test program uses cost-effective models and simulations to assess system configurations, engagement conditions, and target phenomena.
- Models and simulations allow repeated assessments of performance and provide a statistical determination of effectiveness.

### Ground Tests, Flight Tests, Exercises, and Wargames

- Vigorous flight and ground testing provides essential data to validate the accuracy of models and simulations.
- Ground tests combine element hardware-in-the-loop, digital representations, high fidelity threat simulations, and operational assets to test BMDS capabilities across a wide range of threats and environments that cannot be affordably replicated in flight tests.
- Flight tests use assets in their operational configuration against an inventory of targets to assess all aspects of BMDS performance in a variety of flight test regimes.
- Exercises and wargames support Joint Staff, Combatant Commanders, Service Components, and Allies in preparation of concepts of operations; tactics, techniques, and procedures; doctrine; and requisite training on current and evolving BMDS capabilities.

### Operational Realism and Warfighter Involvement

- Tests are planned and conducted in partnership with the Director of Operational Test and Evaluation, Director of Developmental Test and Evaluation, and with the Army, Navy, and Air Force Operational Test Agencies to embed operational test and warfighter requirements in the test program.
- Warfighters, who operate the deployed system, ensure that tests use operational doctrine and real-world constraints while evaluating new concepts of operations and exercising tactics, techniques, and procedures.
- Testing provides warfighters with confidence in the basic design of the BMDS, its hit-to-kill effectiveness, and its inherent operational capability.

### Directorate for Test

- The Missile Defense Agency's Directorate for Test executes BMDS test policy, manages the BMDS Test Baseline, and provides programmatic and technical direction and oversight of the test program and test resources.
- The Directorate for Test is located primarily in Huntsville, Ala., and Colorado Springs, Colorado, with additional personnel at other locations around the world to provide test planning, test execution, and data analysis support.