

Ballistic Missile Defense System (BMDS)

Executive Summary

- Theater elements of the Ballistic Missile Defense System (BMDS) made good progress this year.
- The Ground-Based Midcourse Defense (GMD) program, the strategic element of the BMDS, experienced two consecutive flight test failures due to unrelated causes. The Missile Defense Agency (MDA) has responded appropriately, with independent assessment teams and aggressive remediation plans. MDA should maintain their commitment to these corrective actions. Flight testing has been delayed while corrective measures are implemented. MDA will restore confidence in the system through a series of basic and progressively more challenging flight tests, culminating in an intercept attempt next year.
- As reported last year, there is insufficient evidence to support a confident assessment of Limited Defensive Operations or Block 04 capabilities. There is developmental test data that suggests the system may have some inherent defensive capability.

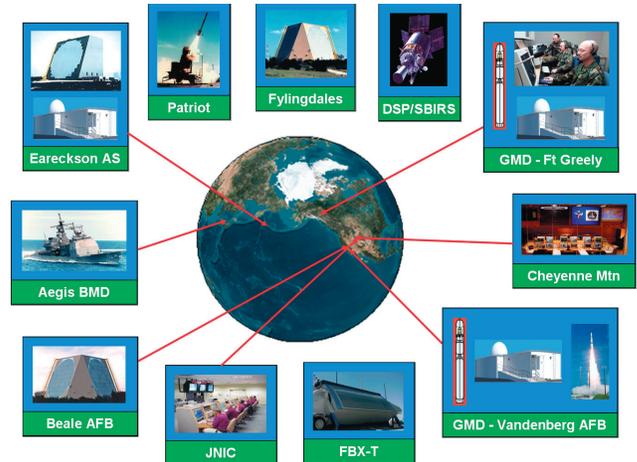
System

The Block 04 BMDS:

- Integrates ballistic missile defense capabilities against all ranges of threats.
- Is a distributed system composed of four elements:
 - GMD
 - Aegis Ballistic Missile Defense (Aegis BMD)
 - Command, Control, Battle Management, and Communications (C2BMC)
 - PATRIOT Advanced Capability 3 (PAC-3)
- Is employed as part of an integrated strategic defense plan
- Future blocks of the BMDS will include:
 - Airborne Laser (ABL)
 - Forward-Based X-band Transportable radar (FBX-T)

Activity

- Aegis conducted two successful intercept flight missions, along with extended tracking exercises.
- C2BMC conducted integration testing.
- Ground-Based Interceptor Flight Tests:
 - One ground-based interceptor flight test without a target.
 - Attempted two integrated system-level flight tests, one of which included an attempted target intercept. Both tests failed for unrelated reasons preventing interceptor launch. This led to a restructuring of the test program and schedule. (See GMD for more details.)
- Two ground-based radar performance characterization flight tests using a target missile.



- Space Tracking and Surveillance System (STSS)
- Terminal High-Altitude Area Defense (THAAD)

These elements are reported separately in subsequent pages.

Mission

- U.S. Strategic Command is responsible for overall ballistic missile defense and will use the BMDS to defend the U.S. territory, deployed forces, friends, and allies against ballistic missile threats of all ranges, in all phases of flight. Initial capability will permit defending the U.S. territory against ballistic missile threats.
- U.S. Strategic Command and U.S. Pacific Command will maintain situational awareness across the full mission space using the C2BMC system.
- The Army employs PAC-3 to provide theater defense for the deployed forces against short- and intermediate-range threats. PAC-3 has transitioned from MDA to the Army, and is reported as an Army program.

- Four system-level ground tests.
- Implemented a centralized test planning and execution organization, and established test configuration control processes.
- Established an independent review team to assess the root cause of the failures and associated programmatic quality issues.
- Established a Mission Readiness Task Force to add rigor to the test readiness process and develop a systematic remediation plan to return to flight testing.

BALLISTIC MISSILE DEFENSE SYSTEM

- MDA added six interceptors to the test bed at Fort Greely, Alaska, bringing the total deployed inventory to 10 missiles at Fort Greely, Alaska, and two at Vandenburg Air Force Base, California.

Assessment

- As reported last year, there is insufficient evidence to support a confident assessment of Limited Defensive Operations or Block 04 capabilities. There is developmental test data that suggests the system may have some inherent defensive capability.
- C2BMC continues to make progress, but has not yet demonstrated engagement control.
- Two independent review teams, chartered by MDA to review the development and test programs, found that quality, workmanship, and inadequate ground testing contributed to flight test failures.
- The Mission Readiness Task Force recommended that MDA execute a deliberate series of tests that gradually increase in complexity in order to return to a stable flight test program. This is a prudent plan that focuses first on component-level testing and flight readiness, then demonstrates interceptor performance, integration of the launch equipment, a flight mission with a target missile, and finally an intercept flight mission.
- MDA is gradually adding operational realism to the BMDS test program by including both developmental and operational test objectives in all system-level test events.
- The majority of progress over the past year has been in the component-level test programs.

The BMDS is designed to provide a new capability against an important set of ballistic missile threats. To fully assess its operational capabilities, the following must occur:

- Robust system-level testing as the deployed components mature
- Models and simulations must be accredited in time to support system-level ground tests
- Flight tests must achieve operational realism as components mature
- Future testing must demonstrate capabilities against challenging threat scenarios

Recommendations

1. Maintain the current emphasis on the Mission Readiness Task Force test program.
2. Conduct interceptor flight tests utilizing the operational ground systems, midcourse sensors, and warfighter crews.
3. Conduct operationally realistic intercept tests against a realistic target suite to demonstrate capability and validate models.
4. Conduct robust distributed ground tests that employ operational communications.
5. Exploit the deployed architecture of the test bed to gather reliability, availability, and maintainability data.
6. Implement the recommendation of the independent review teams to develop and test components of the BMDS in accordance with disciplined product assurance and test processes.
7. Establish procedures or architectural changes to support combined operations and robust testing.
8. Enforce the newly established test configuration control process.