

**Statement by
Thomas P. Christie
Director, Operational Test and Evaluation**

**Before the
Senate Armed Services Committee**

Missile Defense

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Mr. Chairman, members of the committee, I appreciate the opportunity to appear before you today and provide you with an update on where we stand with respect to testing the Ballistic Missile Defense System, or BMDS. I continue to strongly support the construction and integration of the BMDS Test Bed. This BMDS Test Bed will provide the elements that make up the Initial Defensive Operations, or IDO architecture. While I am very encouraged by the improved testing environment and capability the BMDS Test Bed will provide, I am even more pleased with the increased emphasis on system integration and user involvement I have seen over the past year. STRATCOM and NORTHCOM are developing tactics, techniques and procedures for operating the system. The Missile Defense Agency and the element program offices are making the developmental tests progressively more realistic. They are ground testing with the available system hardware and software and involving soldier operators to the degree possible.

As I have said in the past, the system must be built before we can properly test it. The Missile Defense Agency is still building it. We have just begun to ground and flight-test some of the system components in a tactical configuration. General Kadish is restructuring the BMDS testing program in 2005 to focus on further characterizing and evaluating the performance envelope of the IDO capability. This testing will be more operationally realistic in that test scenarios will include more complex target presentations and engagement geometries. It also will provide a better understanding of the IDO end-to-end performance capability.

The Missile Defense Agency continues to be proactive when it comes to testing. General Kadish has adopted a test-find-fix-test philosophy. This approach provides a higher likelihood of finding design and workmanship problems early in the program. The decision to exploit the Test Bed elements for an initial operational capability has required some substantive changes in test

planning. Test objectives have shifted from demonstrating component capabilities to demonstrating integrated system capabilities. My staff and I remain involved on a daily basis with the Missile Defense Agency and the BMDS element program offices to ensure that operational test issues are addressed in testing. I have recently sent forward for your review, the master test plan for the Block 04 BMDS, along with the developmental master test plans for the four major elements (GMD, Aegis, ABL and THAAD). While statute prohibits me from having authority or responsibility for developmental testing, we are involved in an advisory role in the development of these plans. Aegis and GMD are the two primary elements of the Test Bed that will comprise the near term capabilities of the BMDS IDO. In both the GMD and Aegis programs, operational testers are involved with insuring that developmental testing addresses as many of the operational objectives as possible. The Navy's Operational Test Agency is advising the Aegis missile defense program on how to make their testing more realistic without compromising important developmental testing goals. The GMD program's Combined Test Force effectively integrates the operational testers into the program development activities and the test design and planning efforts. The Service Operational Test Agencies are working jointly, and in concert with DOT&E, to independently advise MDA and GMD Combined Test Forces on test plans, and are independently evaluating all ground and flight test data. My office has reviewed and approved the operational test objectives for the last three GMD integrated flight tests. The Operational Test Agencies, in close coordination with my office, have developed a characterization plan that provides the basis for continuous operational assessments of demonstrated BMDS capability as it is baselined in 2004, and for each Block as it matures. The Missile Defense Agency has supported this effort. I am pleased with their openness and cooperation with my office and the Service Operational Test Agencies. We have agreed on the

data sources that will support both Missile Defense Agency and operational capability assessments. This will help ensure that the test planning will to address both developmental and operational objectives.

The operational test community places less emphasis on component level test results, though we agree that such testing can provide a robust characterization and insight into individual component and subsystem performance. Realistic operational testing requires the integration of all the internal and external system elements, including operator personnel employing approved tactics and doctrine in accordance with their training, to accomplish mission planning and engagement through kill assessment. When integrated system performance is not confirmed by integrated system level testing, the burden of combining component performance into system performance falls to models and simulations. Modeling and simulation are not a good substitute for integrated system testing. However, when modeling and simulation are used to provide context to integrated system hardware in the loop tests, they can help to overcome test limitations and give a more complete picture of mission capability. I feel that MDA is acting responsibly in using models and simulations to estimate system performance, but would caution that since the system is still in development, model based estimates almost always contain uncertainties.

Fielding the Test Bed provides an opportunity to gather operational data on system performance, safety, survivability, reliability, availability, and maintainability. We should expect these data to drive system enhancements. The challenge will be achieving a defensive posture that is flexible enough to accommodate the necessary changes to hardware, software, and processes that will be necessary to maintain a highly available BMDS system, while supporting a

comprehensive testing program that that is designed to mature, improve, and demonstrate mission capabilities through continued development.

In summary, let me say that for years my office has been advocating more comprehensive developmental testing, leading up to realistic operational testing. Specifically we have encouraged programs to do more hardware and software in the loop testing early during system integration to avoid problems typically found during operational testing of complex networked weapon systems. The system integration laboratories being employed by the Missile Defense Agency and its elements are addressing this important aspect of system maturation. The Test Bed is adding flexibility and complexity to the flight test program that will pay dividends in the future. The commonality of architectural components between the Test Bed and the operational system poses management challenges, but should speed the integration of new capabilities as they are confirmed through testing. Mr. Chairman, Ladies and Gentlemen, my staff and I continue to work with General Kadish and his staff to ensure that the capabilities and limitations of the Ballistic Missile Defense System are well characterized as the system proceeds in development and testing.

This concludes my opening remarks and I welcome your questions.