

JOINT CRUISE MISSILE DEFENSE (JCMD)



DETECT AND TRACK



IDENTIFY



ALLOCATE



ENGAGE

Joint Test and Evaluation Program

Authorized Staffing	
FY99-00:	17
FY01-04:	27
Total JT&E Budget (TY\$):	\$17.3M
Charter Date:	4QFY99
Completion Date:	4QFY04

Lead Service

Air Force

JT&E DESCRIPTION AND CONTRIBUTION TO JOINT VISION 2010

OSD chartered the Joint Cruise Missile Defense (JCMD) Joint Test and Evaluation (JT&E) to employ multi-Service and other DoD agency support, personnel and equipment to investigate, evaluate, and improve the operational effectiveness of joint defenses against cruise missiles. JT&E will identify a baseline capability by evaluating and documenting current JCMD processes and procedures in realistic operational scenarios. JT&E will identify and select potential enhancements to the JCMD process and

test those enhancements in environments as closely aligned with baseline measurements as feasible. The *full-dimensional protection* pillar of *Joint Vision 2010* addresses the need to protect U.S. forces from the very technologies the U.S. is attempting to exploit. JCMD JT&E will address the number-one priority of the full-dimensional protection pillar: countering air and missile threats.

The Joint Cruise Missile Defense mission area is the integrated efforts of a Joint Integrated Air Defense System (JIADS) to counter a cruise missile's threat. JT&E will address all five elements of the JIADS cruise missile kill chain: Detect, Track, Identify, Allocate Assets, and Engage.

BACKGROUND INFORMATION

With the aid of a Joint Working Group, the JCMD staff formulated the following problem statement on JCMD for JT&E: *"The Joint Integrated Air Defense "Family of Systems" capability to meet the cruise missile threat has not been fully explored."*

In this case, the term "Family of Systems" refers to the collection of individual systems that make up JIADS. The family includes command, control, and communications assets (E-3 aircraft, E-2 aircraft, ground systems, etc.), shooter assets (fighter aircraft, Patriot, AEGIS, etc.), and all the other principal systems resident in a theater capable of performing one or more JIADS functions. JCMD JT&E will test current (2001) JIADS JCMD capability, identify problem areas, and then test implemented improvements and enhanced JIADS JCMD capability (2003). The selected methodology for JT&E includes a mix of joint field tests with operational units involved in the joint air defense mission and multi-purpose simulations. This test approach provides the ability to: (1) assess the effectiveness of a joint force's ability to counter the cruise missile threat; (2) identify critical problem areas; (3) define potential enhancements; and (4) assess the effects of the enhancements on the mission effectiveness of a joint integrated air defense force. The Joint Test Force (JTF) will develop and leave behind a series of legacy products designed to institutionalize the work and results of the JT&E.

TEST & EVALUATION ACTIVITY

The JCMD JTF will conduct a series of field and simulation tests to assess the current and enhanced JIADS JCMD capability. Phase 1 of the JT&E consists of two field tests (a mini-test [MT] and a full-up field test [FT-1]) and one major virtual simulation test (ST-1), augmented by constructive simulation assessments. Phase 1 efforts will identify the effectiveness and shortfalls in JIADS JCMD capabilities and provide the opportunity to identify potential enhancements, both in terms of improvements to JIADS component systems as well as improvements to current operational tactics, techniques, and procedures (TTP) and concepts of operation (CONOPS).

The first JCMD JT&E field activity, a mini-test, is scheduled to occur between February-March 2000, in conjunction with the All Service Combat Identification Evaluation Team (ASCIET) annual evaluation. This test will focus on the JIADS functions of detection and tracking cruise missiles. The JTF limited the scope of the initial test to solidify the data collection approach, train the team, and assess the ability of the JIADS component systems in detecting and tracking the JCMD-selected cruise missile surrogate target. Subsequent field tests will use the same venue as MT, thus minimizing the number of uncontrolled variables.

The JTF has scheduled FT-1 in conjunction with the February-March 2001 ASCIET evaluation. This test will address all elements of the JIADS kill chain and will, together with data from MT, provide the basis for calibration of the JCMD virtual simulation architecture. The JTF will use this architecture to conduct the first major simulation test (ST-1) in the November 2001 timeframe at the Virtual Warfare Center. These first three tests will provide the data to enable an assessment of current (2001) JIADS capability in the JCMD role. The JTF will use ST-1 to project results of FT-2, thus providing a link between Phase 1 and Phase 2.

Phase 2 of JT&E will consist of a major field test (FT-2) and a major simulation test (ST-2). FT-2 will provide an assessment of the effects of the enhancements to JIADS JCMD capability and FT-2 data will provide further calibration for JCMD simulation architecture. The JTF will use ST-2 to explore the potential benefits of furthering JIADS enhancements and assess the impacts of alternate scenarios.

In order to maximize the utility of JCMD simulation architecture, JTF plans to conduct a formal legacy transition phase. During this phase, JTF will assist a major legacy customer in planning and executing a simulation test (Legacy Simulation Test) that will predict the results of a major field test (exercise) where JCMD is a primary objective. The JTF will then assist that customer in planning and conducting the JCMD portion of the field test (Legacy Field Test). Preliminary coordination indicates that Pacific Command (PACOM) will be the primary customer and the Legacy Simulation Test and Legacy Field Test will focus on the PACOM area of responsibility, threat, etc.

This robust demonstration approach will serve to firmly entrench the JT&E-developed methodology as the primary tool for assessing the effectiveness of JIADS forces engaged in JCMD. The major customer will be the primary manager of both the Legacy Simulation Test and the Legacy Field Test, with JTF serving in an advisory capacity. This will minimize the cost of the legacy transition phase, yet achieve the goal of establishing a true legacy owner.

TEST & EVALUATION ASSESSMENT

JCMD JT&E focuses on two critical operational issues:

1. What is the current JIADS capability to defeat cruise missiles (2001)?
2. How will near-future enhancements improve current capability as force multipliers (2003)?

Using the dendritic process, the JCMD staff developed a series of sub-issues, measures, and data elements structured around the kill chain processes to address the two issues. The resulting JT&E dendritic structure provided the logical framework for defining and refining the JT&E test design and identifying the required data collection and analysis processes. As designed, the JT&E directly addresses both issues quantitatively and qualitatively. The specific effectiveness measures calculated for Issue 1 will quantify current JIADS JCMD capability. Comparison of these same measures calculated for Issue 2 will provide an assessment of the worth of the tested enhancements. Additional qualitative assessments by operational subject matter experts will assist in identifying needed changes to TTP and CONOPS, as well as further potential JIADS enhancements.

The JTF will publish an interim report approximately six months following each major test activity. This will provide near-term feedback to the warfighters for use in interim improvements to TTP and CONOPS as well as inputs to their requirements processes. The JCMD JT&E final report and briefing is scheduled for May-June 2004.

