JOINT SUPPRESSION OF ENEMY AIR DEFENSES (JSEAD)

Joint Test and Evaluation Program		**Lead Service**
Authorized Manning:	51	Air Force
Total JT&E Budget:	$23.3M	
Charter Date:	3QFY96	
Completion Date:	4QFY01	

JT&E DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

The Joint Suppression of Enemy Air Defenses (JSEAD) Joint Test and Evaluation (JT&E) was chartered by OSD to characterize the reactive JSEAD targeting process, baseline current capabilities, quantify element contributions to that process, identify deficiencies, and test and evaluate potential improvements. The program issue, as developed through analysis of warfighter concerns, is: *Do end-to-end JSEAD targeting process enhancements improve reactive, localized JSEAD effectiveness?* Three separate test issues address specific parts of the program issue:

- **Test Issue 1:** "Do the proposed changes to Intelligence, Surveillance, and Reconnaissance (ISR) collection management improve reactive JSEAD effectiveness over the current baseline?"

- **Test Issue 2:** "Do the proposed changes to intelligence processing improve reactive JSEAD effectiveness over the current baseline?"

- **Test Issue 3:** "Do the proposed changes to Command and Control (C^2) improve reactive JSEAD effectiveness over the current baseline?"

JT&E will result in recommendations for improving the end-to-end reactive JSEAD effectiveness of U.S. forces and reducing enemy Integrated Air Defense System (IADS) capabilities.

This JT&E is designed to support the development and test and evaluation of systems with the mission of ***precision engagement.*** In addition, end-to-end engagement capability of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C^4ISR) systems supports ***information superiority*** and the electronic warfare systems support ***full-dimensional protection***.

BACKGROUND INFORMATION

Warfighting commanders require the capability to conduct effective JSEAD operations to sever an enemy's IADS by targeting key command and control and air defense assets. JSEAD operations apply pre-planned (pre-emptive) and opportune (reactive) targeting, whereby commanders employ both destructive (seek out and destroy) and disruptive (temporarily deny, degrade, deceive, delay or neutralize) force application methods. Since the Gulf War, the JSEAD strategy has emphasized pre-emptive targeting and destructive force application methods. However, the surface-to-air missile threat is becoming more technologically sophisticated and mobile, and therefore more difficult to target pre-emptively. With fewer dedicated JSEAD assets to perform reactive JSEAD in this increasingly hostile air defense environment, there is a need to improve the Joint Force Commander's ability to conduct reactive JSEAD more effectively and efficiently using existing Service assets.

The JSEAD Joint Test Force (JTF) effort to accomplish its charter began with characterizing existing JSEAD processes in Joint and Combined Air Operations Centers worldwide. The JTF placed specific emphasis on ISR, intelligence processes, and command and control. This allowed the JTF to develop a generic model of JSEAD targeting processes suitable for testing and ensured that test results could be implemented worldwide.

The JSEAD JTF performed two field tests in 1998: (1) a live-fly exercise (LIVEX 98) employing multi-Service participants, Red Flag resources, during the conduct of a Green Flag Exercise at Nellis AFB; and (2) a Computer-Assisted Exercise (CAX 98) at the Air Force Battlestaff Training School at Hurlburt Field, FL. Each test included an initial set of trials to establish a baseline for evaluation of the associated test issue and a second set of trials to allow measurement of enhancement impacts.

Tests planned for 1999 were cancelled due to priority commitments of key test assets to support combat operations against Iraq and the Former Republic of Yugoslavia. The JTF provided valuable findings from JSEAD's 1998 tests to decision makers responsible for those combat operations.

TEST & EVALUATION ACTIVITY

The ongoing experiences in the Balkans, when combined with the detailed 1998 test results, clearly attested to the need to continue JT&E through charter completion despite the loss of 1999 test opportunities. The SAC rated JSEAD as its top priority JT&E and approved an extension to September 2001 to allow for completion of a final LIVEX in August/September 2000.

Following the extension approval, the JT&E completely revised the Program Test Plan and Data Management and Analysis Plan to reflect the resultant program level changes. An OSD Interim Program Review and two General Officer Steering Committee meetings were also completed to ensure that JT&E was properly focused and in touch with Warfighter needs. Additionally, an Interim Report was published

and two highly successful Data Management Exercises were completed in conjunction with the U.S. Air Force Weapons School Mission Employment exercise as risk reduction rehearsals for LIVEX 00.

SEAD's final test, LIVEX 00, was conducted at Nellis AFB from August 26-September 8, 2000, using Green Flag as its test bed. The test featured over 1,000 aircraft sorties in a realistic air defense environment, a rich ISR collection capability, advanced intelligence processes, and the exercise of command and control over the joint forces. The JTF meticulously instrumented all participants to support rigorous analysis and meet original JT&E charter objectives. The JTF will complete reconstruction, analysis and reporting of LIVEX 00 as well as its overall test program in FY01.

Upon completion of its analysis, the JTF will offer recommendations for improved JSEAD tactics, techniques, procedures and doctrine. The JTF will produce recommendations for training, command and control, and intelligence processes that warfighters will be able to implement immediately. The JTF will also identify any remaining mission needs that cannot be met with existing mission resources.

TEST & EVALUATION ASSESSMENT

The JTF's first test, CAX 98, was conducted from March 1-8, 1998, and focused on time-critical targeting processes within a Joint Air Operations Center (JAOC). Twelve test trials were conducted. By using an approved Southwest Asia scenario with personnel from CENTCOM, CENTAF, ARCENT, and NAVCENT, the test was able to effectively emulate JSEAD related functionality of a JAOC operating on a theater conflict scale. The test was designed to characterize and measure enhancements in information management, battlespace awareness tools, and time-sensitive targeting processes. The collection process was viewed as fully successful and demonstrated the feasibility of combining both testing and training venues within a Blue Flag type facility.

The first LIVEX test, LIVEX 98, was conducted from April 20-May 1, 1998. The test was conducted in an operationally realistic environment for characterizing ISR baseline and measuring the impact of ISR enhancements on information completeness, timeliness, and accuracy. Analysis of LIVEX 98 test data provided valuable insights to commanders and key decision makers responsible for combat operations, including OPERATION NORTHERN WATCH and OPERATION ALLIED FORCE. LIVEX 98 data also provided useful inputs to the design and execution of subsequent test activities.

LIVEX 00 was conducted from August 26-September 8, 2000. The test redefined JSEAD baseline capabilities and tested and evaluated potential improvements to the reactive JSEAD process through the implementation of improvements to the ISR, intelligence processing and fusion, and C^2 processes. Fifteen trials were completed in LIVEX 00. The data are currently undergoing trial reconstruction and analysis.

LIVEX 00 was OSD's most complete and realistic test of modern reactive JSEAD targeting to date. LIVEX 00 utilized the facilities provided by the Nellis Range Complex and Red Flag for test and training, but augmented them with more threats, a current intelligence team, a combat operations division, and additional instrumentation. Organizations throughout the Department of Defense, as well as National agencies, supplied ISR assets, coverage, and participants. Joint ISR contributors included U-2, EP-3, Rivet Joint, National systems, Joint Surveillance Target Attack Radar System (JSTARS), Predator, and associated processing stations. Intelligence analysts from the ISR providing organizations used an array of feeds including TIBS, TDDS, TADIXS-B, TRIXS and USMTF messages. Intelligence analysts processed imagery using a variety of systems including Joint Services Work Station, Joint

Targeting Workstation, and Predator video. Intelligence also cross-cued participating systems and used manual processes as well as Generic Area Limitation Environment Lite to fuse multiple reports. Intelligence products were provided to the Combat Operations Division at the collateral level using Radiant Mercury.

In LIVEX 00, the JAOC Combat Operations Division tasked reactive JSEAD targeting using voice messages, Rapid Precision Targeting System, and data links. Airborne Elements of the Theater Air Control System, including E-3, Airborne Battlefield Command and Control Center, JSTARS, and Rivet Joint provided additional command and control including threat warning, tasking, voice relay and data link messages.

LIVEX 00 Combat Forces included airborne alert aircraft dedicated to reactive JSEAD targeting with standoff weapons (USAF F-15Es with AGM-130s and USMC F/A-18Ds with JSOW). Suppression aircraft included EA-6Bs, EC-130s and F-16CJs. JSEAD operations in LIVEX 00 were set in a realistic scenario with other aircraft assigned primary combat missions of Counter-air and Interdiction. A Battlefield Coordination Detachment and a Naval/Amphibious Liaison Element directed notional JSEAD engagements by Army Tactical Missile System and Navy Tomahawk Land Attack Missile respectively. These were the only notional weapons systems in the test.

By leveraging ongoing operational exercises (Blue Flag and Green Flag.), this JT&E is avoiding costs otherwise associated with a fully dedicated test program.