

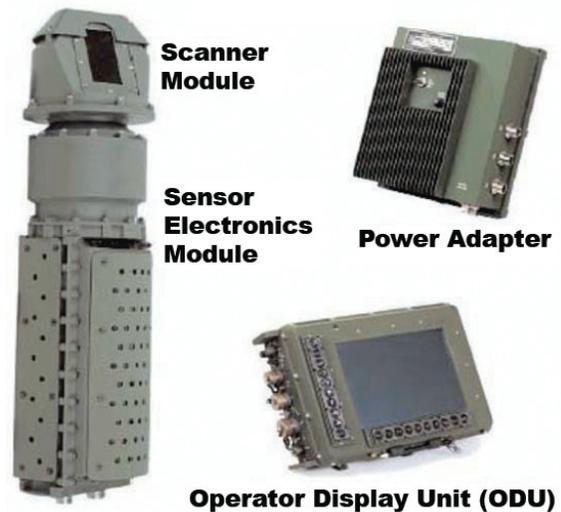
# Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD)

## Executive Summary

- The Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) failed to meet its operational requirements, and was rebaselined in 2003. The program is designed to have three increments. The original requirements were reduced for Increment 1 to reflect the system's performance as demonstrated by testing.
- There is no approved Test and Evaluation Master Plan for this system. Testing Increment 1 will occur in conjunction with the Joint Service Light Nuclear, Biological, and Chemical (NBC) Reconnaissance System (JSLNBCRS), Marine Corps' Light Armored Vehicle variant. That is the system on which it is to be used.

## System

- The JSLSCAD is intended to provide detection of standoff chemical agent vapors. It has three increments. Increment 1 is vehicle-mounted only. Increment 2 is intended to be mounted on ships, aircraft, UAVs, NBC reconnaissance vehicles, and fixed sites. Increment 2 is intended to provide better probabilities of detection at longer ranges. Increment 2 will also be mounted onboard ships. Increment 3 is designed to be mounted on aircraft.
- JSLSCAD Increment 1 is an infrared passive detector weighing less than 50 lbs.
- The current plan is to refurbish 31 Increment 1 prototype systems and produce 108 systems for the full-rate production quantity.
- The Joint Acquisition Objective for JSLSCAD is approximately 2,400 units.



## Mission

- Commanders employing JSLSCAD are provided information warning of the impending arrival of chemical warfare agent vapor clouds. Commanders will then decide on necessary protective measures.

## Activity

- The Joint Program Executive Office for Chemical and Biological Defense rebaselined this program in 2003. Its Single Acquisition Master Plan has not yet been approved. There is an approved Capability Production Document for Increment 1. DOT&E has not approved a Test and Evaluation Master Plan since this program was placed on the Operational Test and Evaluation Oversight List in 2000.
- In 2005, the Joint Requirements Oversight Council revised the requirement of Increment 1 to detect blister agent vapor with 70 percent probability, and nerve agent vapor with 29 percent probability up to 500 meters while the platform is moving or stationary. The requirement had been 90 percent probability of detection out to 5,000 meters.
- There was no operational test activity during FY05.

- JSLSCAD Increment 1 Multi-Service Operational Test and Evaluation (MOT&E) is planned to be part of JSLNBCRS MOT&E in 2006.
- The program manager has sponsored extensive modeling and simulation studies to understand how the JSLSCAD would function in the field against live chemical agents.
- Three candidate commercial off-the-shelf systems for Increment 2 are being tested. A selection will be made in FY06.

## Assessment

- JSLSCAD Increment 1 did not perform well in early field test against simulants. It detected simulants at ranges out to 500

meters instead of the intended 5,000 meters. It has had a high false alarm rate.

- When used in a vehicle-mounted configuration at full speed of 56 kilometers per hour (about 35 miles/hour), the JSLSCAD may provide no warning before entering or passing through the vapor cloud because of its limited detection range. This conclusion is derived from the fact that the system completes a search pattern in 90 seconds, and the vehicle can cover almost 1,500 meters in 90 seconds. If the detector can only detect out to 500 meters, the vehicle will have entered the cloud before it will alarm.
- Modeling and simulation indicate that water vapor and ozone can be significant natural interferents for the JSLSCAD Increment 1. This may hamper operational use of this system.

## **Recommendations**

1. DOT&E will continue to follow the performance of Increment 1 in preparation for the JSLNBCRS MOT&E, but approval of test plan is contingent on an approved Single Acquisition Master Plan and Test and Evaluation Master Plan.
2. Continue to pursue resolution of modeling and simulation work to understand how test simulants relate to actual agent clouds in Increment 1's processing and reporting.