

Combat Survivor Evader Locator (CSEL) System

The Combat Survivor Evader Locator (CSEL) is a survival radio/personnel locator system designed to provide survivor/evader (S/E) location and two-way communication between S/Es and rescue forces. It is designed to enable command elements and search and rescue forces to locate and maintain contact with CSEL-equipped personnel. It is intended to replace current PRC-90 and PRC-112 survival radios. Although interest in upgrades to these systems has always been high, the global war on terrorism and Middle East tension have further elevated the requirement. U.S. Central Command and U.S. Special Operations Command officials have requested acceleration of deployment of upgraded capabilities to the field.

The CSEL includes radios, unmanned base stations, and rescue center workstations. It relies on support from UHF Satellite Communications (UHF SATCOM), Secret Internet Protocol Network (SIPRNET), National Systems, Search and Rescue Satellite Aided Tracking System (SARSAT), and the Global Positioning System (GPS). The Hand Held Radio (HHR) uses line-of-sight UHF/VHF voice, beacon, GPS, and Over-the-Horizon (OTH) data modes for worldwide coverage. The OTH segment includes unattended UHF Base Stations (UBSs) that control SATCOM links with HHRs and interface with National Assets, SARSAT, and Joint Search and Rescue Centers (JSRCs) on the SIPRNET. The ground segment displays and prepares messages for transmission to/from the HHR via UBSs.

In response to an unfavorable Air Force Operational Test and Evaluation Center Operational Assessment (OA) in 1998, the Air Force restructured the program and adopted a spiral development approach. Over the next three years, two more spirals were added to address deficiencies and to respond to additional requirements levied on CSEL. One such requirement, added by the Joint Chief of Staff, was the GPS Selective Availability Anti-Spoofing Module (SAASM). A FY01 OA supported a decision to buy 376 HHRs—35 with old SAASMs and the rest with improved SAASMs to be tested in Multi-Service Operational Test and Evaluation (MOT&E). The full-rate production decision is planned for 4QFY03.

TEST & EVALUATION ACTIVITIES

CSEL Developmental Testing was conducted throughout FY02 at joint operating locations in varied climates and environments. Suitability and reliability testing was conducted at Fort Huachuca, Arizona; cold weather suitability at Eielson Air Force Base/Fort Richardson, Alaska; and suitability, reliability, and Concept of Operations (CONOPS) validation testing at Fort Bragg, North Carolina. The Developmental Test (DT) events covered a wide range of locations and produced valuable lessons. However, the HHRs used in these DT events were developmental articles and were not production representative.

Combined DT/Operational Test in Joint and Multinational venues was conducted to evaluate effectiveness and interoperability with potential CSEL users and recovery forces. DT/Operational Test was conducted at Exercise Northern Edge, Eielson Air Force Base, Fort Richardson, Alaska; and with the USS *Abraham Lincoln* Task Force Exercise (afloat). Joint/Multinational interoperability DT/Operational Test was evaluated at Exercise Desert Rescue, Naval Air Station Fallon, Nevada. C⁴I systems



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AIR FORCE PROGRAMS

integration was tested at Millennium Challenge and the Joint Expeditionary Forces Experiments, Nellis Air Force Base, Nevada. Combined Testing produced valuable lessons in operational coordination and interoperability with international partners in both the S/E and recovery force role.

MOT&E, originally scheduled for October 2002, is now delayed until 2003 to support a September 2003 full-rate production decision. Difficulties with HHR software stability and the SASSM equipped GPS have caused numerous slips in Operational Test. The sliding nature of CSEL readiness to test has caused problems with the Operational Test Agencies obtaining and maintaining hard to get test assets and units. This has also made publishing a test plan difficult and thus far, there is no DOT&E approved test plan.

TEST & EVALUATION ASSESSMENT

While CSEL was potentially effective and suitable in the second OA, it was not ready for operational employment. At that time, several areas required corrective action prior to MOT&E: CONOPS, battery reliability, and plans for training, manning, fielding and communications. Since the last OA, the contractor believes that all system deficiencies generated from the OAs are corrected. However, stable production-representative HHRs have yet to be delivered.

Overall, test events this year were more operationally realistic than in previous testing. CSEL was tested in joint and coalition environments, and better integrated into end-to-end combat rescue scenarios with operationally representative Survivor/Evaders, Joint Search and Rescue Centers, rescue forces, and threat systems and forces. CSEL has made progress in the past year, but still has significant issues with employment concepts, training, information assurance, and National Asset support, and most importantly- HHR readiness to test. Thus far the contractor has not delivered an HHR with software that is stable and reliable enough to certify as production representative and ready for Operational Test. The CSEL Program Office and developer are working to ensure the system is stable for the last DT event prior to MOT&E.