

ADVANCED FIELD ARTILLERY TACTICAL DATA SYSTEM (AFATDS)



Army ACAT II Program

Total Number of Systems:	3,266
Total Program Cost (TY\$):	\$1,132M
Average Unit Cost (TY\$):	\$117K
Full-rate production:	1QFY96

Prime Contractor

Hughes

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Advanced Field Artillery Tactical Data System (AFATDS) is a network of computer workstations that process and exchange information from the forward observer to the fire support element for all fire support assets (field artillery, mortars, naval gunfire, attack helicopters, and close air support). Features include the automatic processing of fire requests, generation of multiple tactical fire solutions for missions, monitoring of mission execution, and support for the creation and distribution of fire plans. AFATDS contributes to the *Joint Vision 2010* concept of *precision engagement* by providing responsive fire support command and control to tie together high fidelity target acquisition, prioritized target requirements, and joint forces within the battlespace. AFATDS is one of the five battlefield functional areas comprising the Army Tactical Command and Control System, and will be acquired by the United States Marine Corps (USMC).

BACKGROUND INFORMATION

AFATDS IOT&E, held in 1995 at Ft. Hood, TX, supported an assessment of operationally effective and suitable for a Milestone III production decision. The 1996 AFATDS IOT&E Verification Limited User Test (LUT) confirmed solutions for critical shortfalls, except that of fire planning, where occasional fire mission deletions and system crashes were observed following transmission of the fire plan. Subsequently, AFATDS 96 software and Common Hardware System hardware entered full production and fielding. Areas of continuing interest for future testing included: fire planning, maximum fire-mission processing capacity, operator ability to initialize the AFATDS data base, software reliability of multi-workstation nodes in operational conditions, and interoperability within the Army Tactical Command and Control System.

AFATDS completed a LUT in October 1997, supporting a material release of AFATDS 97 software on newer Common Hardware System platforms. The first operational assessment of AFATDS involving USMC units occurred at Twentynine Palms, CA, from March 23-27, 1998. The tested hardware and software configurations did not support USMC mobility requirements; however, the participating artillery units considered the automated support provided by AFATDS acceptable.

TEST & EVALUATION ACTIVITY

The AFATDS 98 LUT, a joint United States Marine Corps and Army event, was conducted from October 19-November 5, 1998 at Camp Pendelton, CA. The AFATDS 98 LUT examined AFATDS 98 software, the first version developed to address specific USMC requirements. This LUT also examined several versions of hardware, including the Compact Computer Unit, which reduces system size and weight. The AFATDS 98 "Fixes" LUT was conducted from June 21-July 1, 1999 in the Fire Support Test Directorate facility at Fort Sill, OK. This test examined deficiencies identified in the AFATDS 98 LUT and included air operations, naval surface fire support, trigger events, fire planning, Multiple Launch Rocket System units, and attack aviation.

TEST & EVALUATION ASSESSMENT

The AFATDS IOT&E established the core capability for this program. DOT&E continues to monitor AFATDS to ensure that adequate testing is conducted to resolve identified performance shortfalls in the areas of: fire planning, maximum fire-mission processing capacity, operators ability to initialize the AFATDS data base, software reliability of multi-workstation nodes in operational conditions, and interoperability within the Army Tactical Command and Control System. Additional issues include the fielding of AFATDS to USMC and testing future upgrades of this software intensive system with the system-of-systems concept.

Four significant problems were identified during the LUT of the most recent software upgrade. First, AFATDS 98 software was unable to transfer and receive friendly and enemy unit-status information through the USMC Tactical Combat Operations system. AFATDS 98 software was also unable to consistently execute fire plans. Third, AFATDS 98 software was unable to effectively process air support requests, air tasking orders, and airspace control orders. Finally, the Compact Computer Unit that the USMC desires to acquire and field did not demonstrate adequate reliability or availability.

The AFATDS 98 Fixes LUT demonstrated solutions to several of the problems identified in the AFATDS 98 LUT. However, a problem remains with transmitting fire plans, and the reliability of the

Compact Computer Unit requires further demonstration in operational conditions. New functionality to address unresolved problems will be tested during 4QFY00. AFATDS is also being upgraded as a key element of the Army Battle Command System. These upgrades and associated interoperability issues will be examined during Digitization events and Force XXI Battle Command, Brigade and Below testing during FY00-02.

