# Kinetic Energy Anti-Satellite [KE ASAT]

Kinetic Energy Anti-Satellite (KE ASAT) program was intended to provide the United States with the capability to interdict hostile satellites. The KE ASAT consisted of missile and weapon control subsystems. The major components of the missile subsystem are the booster, kill vehicle, shroud, and launch support system. The weapon control subsystem is composed of a battery control center and a mission control element which perform readiness and engagement planning, command and control.

The objective of this program was to define, develop, integrate and test the necessary Kill Vehicle (KV), weapon control subsystem component and subsystems technologies to demonstrate hit to kill performance, with debris mitigation, against hostile satellites. The government awarded a contract to Boeing North American, Incorporated, Rocketdyne Division, Canoga Park, CA as a follow-on effort to a contract which was competitively awarded in 1990. The contract exploits prior effort by a phase which will include prototype hover testing and an option for flight testing. The purpose of the effort was to directly pursue development work of the contractor hardware and software together with testing since 1990, via a follow-on development phase.

This effort consisted of a hover test of the prototype KV; hardware-in-the-loop (HWIL) testing of all elements of the KE ASAT system; upgrades to tactical performance and flight qualification of the prototype KV subsystems; and debris mitigation and system integration testing to validate the system elements. Data to support the DOD Space Control Architecture study will also be provided through simulation runs and system performance estimates. Testing of the KV seeker on an airborne platform was investigated to gather seeker performance data that would normally be demonstrated during flight testing.

A hover test of the prototype KV was conducted in August 1997 at the National Hover Test Facility to demonstrate the full-up KV free flight performance. Air bearing testing of the flight qualified KV will be conducted to allow validation of the closed-loop operation of the complete KV with actual flight software. The Weapons Control Subsystem (WCS) will be upgraded at the Army Space Operations Center (ARSPOC) to include: a Mission Control Element (MCE), Battery Control Center (BCC), and Communications Network (CN).

The production of additional kill vehicles and purchase of additional boosters was to be undertaken in 1998 and 1999. As a result, by 2000, the United States was intended to have a User Operational Evaluation System (UOES) contingency capability of 10 KE-ASATs ready for use if needed, at a total cost of $205 million for the 4 years from FY96 through FY99. Projected funding is $30 million for FY96, $50 million for FY97, $80 million for FY98, and $45 million for FY99.

On 28 February 2000, the Army informed Boeing that it was the intention of the government to restructure and redirect the efforts on the KE-ASAT program, including a halt om the fabrication, assembly, and test of the kill vehicles at a logical stopping point. However, by mid-March 2000 the February directive had been rescinded, with no decision by the government to restructure or redirect the KE-ASAT program.

As of mid-2001 three prototypes had been built, and all three remained in storage at a Boeing facility in Anaheim, CA.

As of mid-2001 there were reports that the program might be transferred from the Army to the Navy.

The Department of Defense invested about $350.0 million in KEASAT technology throughout the 1990s and substantial progress was made in the development of KEASAT hardware and software.

The Kinetic Energy Anti-Satellite (KE-ASAT) Program had been under technology development since 1989 using various configuration architectures to better counter the enemy satellite threat. Over the course of technology development and the continuous evolution of the threat, the KE-ASAT Program has undergone numerous changes in vehicle design, vehicle hardware development, software design and development, and the overall mission requirements. The program was transferred to the Aviation & Missile Research, Development, and Engineering Center (AMRDEC) in 2002. Work activities are performed by Davidson Technologies Inc. (DTI) in Huntsville, Alabama in direct support to the AMRDEC KE-ASAT Program Office.

The contractor supports an ASAT Ground and Flight Test utilizing Real-time simulations (RTSims) and/or Hardware-in-the-loop (HWIL) to represent elements in the KE-ASAT system. The contractor will conduct the test in an integrated real-time configuration, through the use of simulated real-time environments. The contractor provides a Launch Ground Support Subsystem (LGSS) to support flight tests. The contractor provides the support services in the initiation of tests, display of air vehicle events, monitoring of the countdown sequence, generate engagement data for launch, and receive data from the Test Range assets. The contractor performs flight test analyses and supporting all test range activities to include site selection, safety analysis, and trajectory analysis.

Miltec Corp.\*, Huntsville, Ala., was awarded on May 24, 2004, a $4,000,000 increment as part of a $12,382,520 firm-fixed-price contract for an Army counterspace technology testbed. Work will be performed in Iuka, Miss. (65 percent) and Huntsville, Ala. (35 percent), and is expected to be completed by May 30, 2006. Contract funds will not expire at the end of the current fiscal year. There were five bids solicited on April 8, 2004, and one bid was received. The U.S. Army Aviation and Missile Command, Redstone Arsenal, Ala., is the contracting activity (W31P4Q-04-F-R019).

The Space Control Test Capability (SCTC) contractor provides specialized engineering tasks and products to the Space Control Test Capability (SCTC) Initiative Office, Applied Technology Initiatives Directorate, US Army AMRDEC (Aviation and Missile Research, Development and Engineering Center, US Army Aviation and Missile Command). The contractor supports the government office by participating in an IPT (Integrated Product Team) management structure to assist in monitoring SCTC work progress. The contractor utilizes the existing System Integration Framework (SIF) to develop and maintain a counter space system planning capability to study effectiveness and interoperation of potential counter space technologies. The contractor will provide support for tests and exercises necessary to evaluate the capability of candidate counter space technologies to support wartime operations.

