Future Combat Systems: Class I Unmanned Aircraft System (FCS: UAS), XM 156

Executive Summary

- The Future Combat System (FCS) Unmanned Aircraft Systems (UASs) are designed to provide enhanced situational awareness to the FCS Brigade Combat Team and its subordinate organizations through a robust, organic suite of systems.
- The Army selected the Micro Air Vehicle (MAV) system as the Future Combat Systems Class I UAS. The Army deployed the MAV system to include 30 air vehicles with the 2nd Brigade, 25th Infantry Division to Operation Iraqi Freedom in FY08 prior to formal operational test and evaluation. The MAV system employed with the 25th is the first FCS Class I UAS block design.

System

- The MAV system is the basis for FCS Class I UAS.
- The Army intends to employ the FCS Class I UAS at the company/platoon level:
  - Man-portable and weighs 43 pounds
  - Time on station of 40 minutes
  - Operates at an altitude of 500 feet and below and a range out to eight km
- The FCS Class I UAS consists of an air vehicle with a five horsepower engine, a ground station consisting of a ground data terminal and an operator control unit, payload, avionics pod, and support equipment.
- The electro-optical pod or infrared pod payloads are interchangeable sensors. The Class I Air Vehicle can carry one sensor at a time.
- The Class I UAS will use autonomous flight and navigation with Vertical Take-off and Landing and provide target acquisition and laser designation for the Line-of-Sight and Beyond-Line-of-Sight.
- The Army intends FCS UASs to be:
  - Multi-functional and tailorable with small units/teams

  - Operable in varying terrain, including urban environments
  - Teamed with manned aircraft and ground maneuver forces

Mission

- Units will use FCS Class I UAS to conduct reconnaissance, surveillance, target acquisition (RSTA), and communication relay missions.
- The Class I UAS will be carried by dismounted Soldiers and used for RSTA operations in open, rolling, complex and urban terrain under canopy, and in urban environments.

Prime Contractor

- Honeywell

Activity

- The FCS Class I UAS was originally developed by Defense Advanced Research Projects Agency (DARPA) Advanced Concept Technology Demonstration (ACTD) as the MAV. In support of the ACTD, DARPA conducted an operational experiment, System Functional Reviews, and Environmental Effects testing with the MAV from August 2005 through May 2008.
- The Army deployed the MAV system to include 30 air vehicles with the 2nd Brigade, 25th Infantry Division to Operation Iraqi Freedom during 3QFY08 prior to formal operational test and evaluation. The MAV system employed with the 25th is the fist block design for the FCS Class I UAS.
- The Army is developing an overall operational test strategy for FCS Class I UAS, Block 0 for the current FCS Test and Evaluation Master Plan, and employed Class I UAS during the Preliminary Limited User Test. The Army will incorporate FCS Class I UAS, Block I, as part of the Spin Out Infantry Brigade Combat Team.

- The Army is currently developing and refining tactics, techniques, and procedures for the Class I UAS.

Assessment

- The FCS Class I UAS is continuing to develop. The Army incorporated changes to the system in a Block I design such as updated software for vehicle control, faster manual commands, electric fueler, and larger operational control unit.
- The Army plans to incorporate modifications that will enhance mission effectiveness to include a gimbaled electro-optical sensor or a gimbaled infrared sensor.
- During the Military Utility Assessment and other assessment opportunities, the MAV system assisted the using unit in accomplishing its assigned tactical missions and is the basis for FCS Class I UAS, Block 0.

Recommendations

- Status of Previous Recommendations. The Army addressed the previous recommendations.
- FY08 Recommendations. The Army should:
  1. Improve the reliability and durability of the air vehicles.
  2. Improve the training course for operators to include tactical operations, mission planning, airspace management, frequency de-confliction, and emplacement.
  3. Continue development of gimbaled sensors to enhance the capabilities of building security missions.
  4. Improve and reduce the acoustic signature of the air vehicle to improve unit survivability and employment.