Aerial Common Sensor (ACS)

The Aerial Common Sensor (ACS) is an Army reconnaissance, intelligence, and surveillance system. The system consists of four major components: the aircraft, the sensor payload, the data link, and the processing capabilities in an Army ground station. The aircraft will be a medium size jet aircraft that is capable of worldwide deployment, ready to fight anywhere on the globe within 72 hours. The sensor payloads consist of multi-intelligence (MULTI-INT) systems that include a mix of sensors for signals intelligence (SIGINT), including communications intelligence (COMINT) and electronic intelligence (ELINT), as well as imagery intelligence (IMINT) and electro-optical/infrared sensors. The IMINT sensors include synthetic aperture radar and moving target indicator radar modes. The data links include direct line-of-sight communications to ground stations within the theater of operations or satellite communications that can be used to send intelligence data back to a home station operations center within the United States or to a secure rear area. The Distributed Common Ground System-Army (DCGS-A) will serve as the ground station for the ACS aircraft. Much of the software required to process intelligence data from the ACS will be resident at the DCGS-A.

The ACS will replace the Army's current Guardrail Common Sensor and Aerial Reconnaissance Low aircraft. Both of these systems fall short in meeting the requirement for deployment to a distant battlefield in a timely manner in advance of, or with, early entry forces. The ACS is intended to provide timely and accurate detection, threat identification, target tracking, and precision geo-location of highly-mobile and moving targets. The ACS will support force protection, force maneuvers, targeting, and battle management operations.

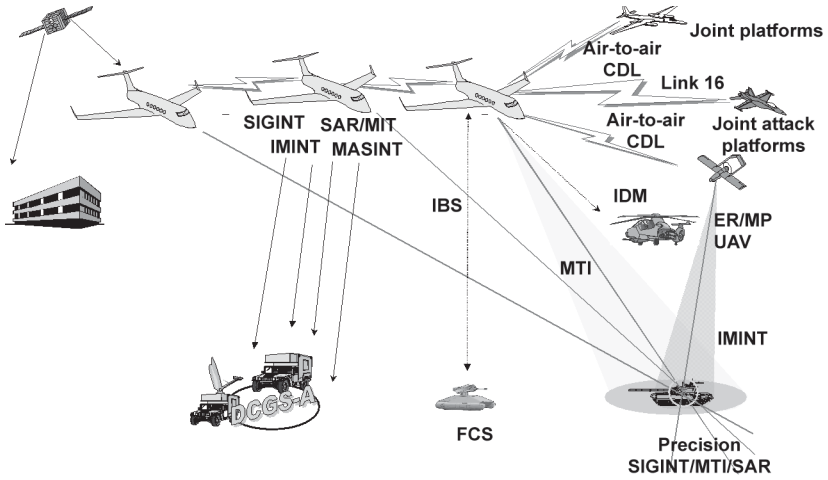
TEST & EVALUATION ACTIVITY

The ACS program completed a series of technology demonstrations in FY03. Two different contractor teams (Northrop Grumman and Lockheed Martin) participated in the technology demonstration phase. Each contractor team set up a series of demos in their systems integration labs that was used to reduce the risk to the SIGINT sensor design, MULTI-INT integration, and man-machine interface design. The contractors had to demonstrate their ability to meet key performance parameters and to demonstrate a mature system architecture. The government approved the plans for the demonstrations and then subsequently witnessed their execution. Data from this phase, along with other analyses, will be used to support a contract award in FY04.

The ACS program completed a Test and Evaluation Master Plan that lays out a robust test program. A series of developmental tests will verify that the ACS has achieved its technical performance goals, including airworthiness certification of the aircraft and performance specifications for the various sensors. Force developmental tests and experimentation will focus on developing and refining the tactics, techniques, and procedures required to operate the system. The operational test phase will assess the ability of the ACS to accomplish its MULTI-INT intelligence, surveillance, and reconnaissance missions in support of a range of different operations.

TEST & EVALUATION ASSESSMENT

The technology demonstration phase conducted in FY03 allowed the Army to assess the technology readiness level of the SIGINT and MULTI-INT portions of the ACS system. The technology was sufficiently mature to proceed to the system design and development phase. The demonstrations also provided the Army with valuable information in selecting a system contractor.



The Aerial Common Sensor is an Army reconnaissance, intelligence, and surveillance system.

Several issues will be of importance to the successful execution of the ACS program. The ACS calls for the MULTI-INT integration of COMINT, ELINT, IMINT, and electro-optic/infrared sensors onto a single aircraft. This integration will be complex and will have to overcome the potential co-site interference between the different sensors. Processing the data from the different sensors will also require a system architecture that can prosecute MULTI-INT missions at both the aircraft and at the DCGS-A ground station. A significant amount of processing will have to occur at the DCGS-A in order to complete many missions. The ACS will also need to be interoperable and integrated with joint Service networks to conduct joint operations with other Services.

There are concerns about the size, weight, and power requirements of the aircraft required to carry and operate the MULTI-INT sensor payload. Associated with this issue, there are concerns about the growth potential of the aircraft to add additional systems and capabilities in the future, consistent with the growth experienced with most other U.S. aircraft platforms.