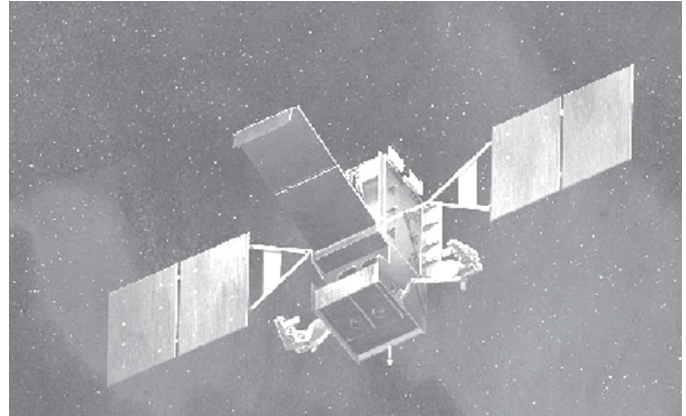


AIR FORCE PROGRAMS

Space Based Infrared System (SBIRS) High

SUMMARY

- The Space Based Infrared System (SBIRS) control segment, operating with Defense Support Program (DSP) satellites, continues to demonstrate improved performance over the earlier DSP ground system.
- The Highly Elliptical Orbit (HEO) payload tests demonstrated that the payloads meet acceptable electromagnetic interference limits, and the first HEO shipped to the host.
- Concerns remain with requirements definition, concepts of operation, definition of operational dependability, software maturity, concurrency between space and ground segment development, and the operational impact of any further program delays.



SBIRS improves capability for Combatant Commanders, deployed U.S. forces, and allies.

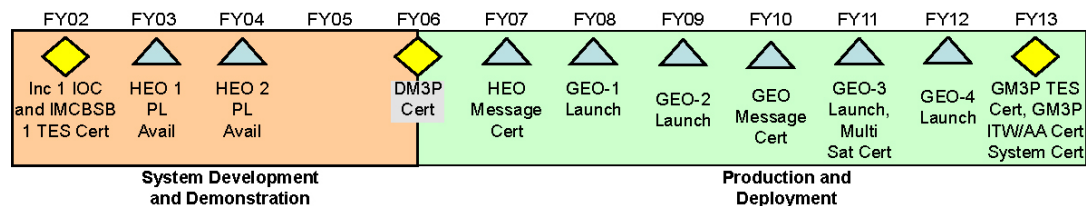
SYSTEM DESCRIPTION AND MISSION

SBIRS replaces the current DSP system. SBIRS improves capability for Combatant Commanders, deployed U.S. forces, and allies by providing better data quality and timeliness in four mission areas: missile warning, missile defense, technical intelligence, and battlespace characterization.

SBIRS acquisition includes two increments. Increment 1, which attained Initial Operational Capability in December 2001, consolidated DSP and Attack and Launch Early Reporting to Theater ground stations into a U.S. mission control station. Increment 1 operates with DSP satellite data. Increment 2 develops software and hardware to operate SBIRS satellites. SBIRS includes two hosted payloads in HEO, with first delivery in 2004, and four satellites in Geosynchronous (GEO) orbit, with first launch in 2006. A fifth GEO satellite will be a replenishment/spare.

SBIRS Increments 1 and 2 entered the Engineering and Manufacturing Development phase following a Milestone II Defense Acquisition Board review in October 1996. In 2002, the Air Force restructured the program due to schedule and cost overruns. In the restructure, the first GEO satellite launch shifted from 2004 to 2006 with ground segment incremental deliveries rescheduled to align with revised satellite schedules.

TEST AND EVALUATION ACTIVITY



Test and evaluation activity during 2004 involved continuing identification and resolution of HEO problems, test tool development, and revision of the Test and Evaluation Master Plan to realign the test concept and events with the revised program schedule and content.

AIR FORCE PROGRAMS

HEO payload tests demonstrated that the payloads met acceptable electromagnetic interference limits, and the first HEO shipped to the host. The second HEO shipment occurs in early FY05. Detailed planning is underway for an extensive set of ground and space end-to-end tests once the HEO payloads are on-orbit.

Test tool development focused on threat scenario simulations and test message injectors. DSP-capable Mobile Multi-Mission Processors are to replace the Army's Joint Tactical Ground Station. Testing of Mobile Multi-Mission Processors in 2005 requires tactical scenario development. Testing of GEO-capable mission processing beyond 2006 requires a new simulation tool and message injector, called Simulation Over Recorded Data, which is under development to augment observed targets of opportunity and to simulate large missile attacks.

Test planning focused on a revision to the current Test and Evaluation Master Plan and test strategy to reflect the current spiral acquisition strategy and program baseline. The SBIRS spiral strategy builds around ten spiral "effectivities," or capability deliveries, with each requiring operational testing. Two of the effectivities are complete (an Interim Mission Control Station Backup in 2002 and an Integrated Training Suite in 2003), while the remaining eight stretch through 2010. Two require testing in 2005: HEO Message Certification, and the Army's DSP-capable Mobile Multi-Mission Processor Theater Event System Certification. GEO Message Certification occurs in 2007.

TEST AND EVALUATION ASSESSMENT

The SBIRS control segment, operating with DSP satellites, demonstrates improved performance over the earlier DSP ground system. As SBIRS satellites begin deployment, the test and evaluation focus will shift from DSP-based operations to the new operational capabilities provided by SBIRS. Plans call for delivery and testing of these capabilities incrementally through 2010. Although test planning is progressing satisfactorily, several areas of concern remain: requirements definition, concepts of operation, and definition of operational dependability. Requirement definition must precede each effectivity to provide for test planning and evaluation of test results, but at this time only the DSP-capable Mobile Multi-Mission Processor effectivity and the end system have well-defined requirements. The concepts of operations used during developmental and operational testing should be the same, but at present there are differences between the two. Operational dependability has a standard definition involving operational uptime and downtime, but SBIRS developmental testing uses a different method and needs to be reconciled with the standard definition.

Besides these specific concerns, DOT&E remains concerned with ongoing software maturity problems, the degree of concurrency between space and ground segment development, and the operational impact of any further program delays.