

Space-Based Infrared System (SBIRS)

The Space-Based Infrared System (SBIRS) replaces the current Defense Support Program (DSP). SBIRS improves support to theater Combat Commanders, U.S. deployed forces, and allies by providing better data quality and timeliness in four mission areas: missile warning, missile defense, technical intelligence, and battlespace characterization.

SBIRS is being acquired in 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 single continental U.S. Mission Control Station (MCS). Increment 1 operates with DSP satellite data. Increment 2 develops software and hardware to operate SBIRS satellites. SBIRS includes two hosted payloads in Highly Elliptical Orbit (HEO), first available in early 2004, and four satellites in Geosynchronous (GEO) orbit, with first delivery in 2006. A fifth GEO satellite will be procured as a replenishment/spare.

The 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 Air Force delayed the launch of the first GEO satellites from 2004 to 2006, and rescheduled incremental deliveries of the ground segment to better align with the delayed satellite schedule.

TEST & EVALUATION ACTIVITY

The Air Force Test and Evaluation Center conducted an Operational Utility Evaluation in Dec 2001 to support certification of the Increment 1 Interim Mission Control Station Backup (IMCSB-1). The IMCSB-1 operates with DSP satellites, and provides an interim backup capability to the MCS until a full MCS backup is developed. The IMCSB-1 was rated effective and suitable, but problems were noted with maintainability and software maturity.

The 2003 test and evaluation activity involved identification and resolution of HEO problems, test tool development, and revision of test plans to realign them with the revised program schedule and content.

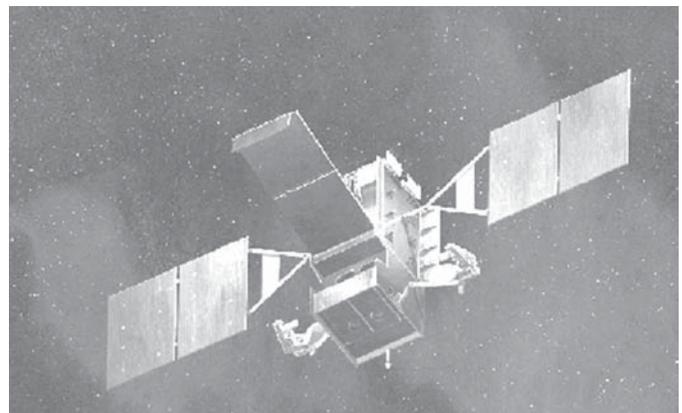
Test tool development focused on threat scenario simulations and test message injectors. Tactical scenarios will first be needed for 2005 testing of DSP-capable Mobile Multi-Mission Processors, scheduled to replace the Army's Joint Tactical Ground Station. Testing of GEO-capable mission processing beyond 2006 will require a new simulation tool and message injector, called Simulation Over Recorded Data, which is being developed to augment observed targets of opportunity and to simulate large missile attacks.

Test planning focused on development of a new Test and Evaluation Master Plan (TEMP) and test strategy to reflect the current program baseline following several restructures since the approved June 1998 TEMP.

TEST & EVALUATION ASSESSMENT

Under the current baseline, SBIRS Increment 2 is being delivered in several evolutionary phases, called "effectivities." The test strategy is being revised to support these effectivities. The precise content, capabilities, and requirements for each of these effectivities, however, are still being defined. The overall test strategy will not be adequate until each of the effectivities is defined to a testable level, and a revised TEMP incorporating effectivities testing is submitted.

The HEO problems, as reported by the Program Office, involved a series of design deficiencies in the HEO payload, including a High Voltage Power Supply in the



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AIR FORCE PROGRAMS

Common Gyro Reference Assembly and an inadequately developed design to control payload electromagnetic interference. Resolution of these problems required extensive rework and parts fabrication, leading to a six-month Acquisition Program Baseline breach of the HEO payload delivery and message certification dates.

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