Space-Based Infrared System Program, High Component (SBIRS HIGH)

Executive Summary
- The Space-Based Infrared System (SBIRS) Increment 1 and related system deliveries continue to perform better than the legacy system.
- The Increment 2 test planning effort is ongoing and will require additional modifications to accommodate program restructuring and schedule delays.
- The concepts of operations being used by the developmental and operational communities are not the same. The concepts of operations should be standardized.

System
- The SBIRS program is being developed to replace the Defense Support Program (DSP) satellites and is being developed in two system increments:
  - Increment 1 uses the SBIRS Control Segment and User Segment, operating with DSP satellites, to provide current military capability. Initial Operational Capability for Increment 1 was attained in December 2001, consolidating the operations of the DSP and Attack and Launch Early Reporting missions.
  - Increment 2 develops new software and hardware for the Mission Control Segment to conduct integrated SBIRS spacecraft operations.
- The SBIRS Space Segment consists of two hosted payloads in Highly Elliptical Orbit (HEO) and four satellites in Geosynchronous Orbit (GEO). The launch of SBIRS satellites for Increment 2 has not yet started.

Mission
- Combatant commanders, deployed U.S. military forces, and allies will use SBIRS to conduct missions that require improved space sensors and operational launch detection capabilities.
- The SBIRS system will provide enhanced data quality and more timely reporting to joint combat forces in four key areas:
  - Provide timely and responsive space-based missile warning and detection
  - Provide launch detection for missile defense operations
  - Provide Technical Intelligence
  - Improve battlespace characterization

Activity
- The SBIRS Integrated Test Team is updating the core Test and Evaluation Master Plan (TEMP) and preparing Annexes 3 and 11 that identify detailed system message and performance level certification for the HEO mission in order to meet the standards of U.S. Strategic Command. The core TEMP and Annexes are scheduled to be submitted to DOT&E for approval in FY07.
- During 2006, the SBIRS program continued to conduct pre-integration testing of the GEO payloads for the Space Segment.
- The SBIRS program initiated development of automated testing and modeling capabilities that are vital to HEO message certification.

Assessment
- The SBIRS Control Segment of Increment 1, operating with the current generation of DSP satellites, is demonstrating improved performance over the earlier DSP control system.
- As SBIRS spacecraft begin integration and deployment, the test and evaluation focus will transition from DSP-related

operations to the new operational capabilities provided by SBIRS.
- The operational requirements for each SBIRS System Annex need better definition in order to develop an integrated test strategy that can meet the current program schedule.
- The initial delays in the development of SBIRS test scenarios and contracting of simulations increased the risk of exceeding current program timelines.
- There are emerging differences between the concepts of operations being used during the developmental and operational communities for the program. This reduces synchronization in the structure of the overall test program, thus it should be standardized.

Recommendations
- Status of Previous Recommendations. The Air Force has made progress on the FY05 DOT&E recommendations, resolving the FY05 #2 recommendation. The rest remain valid.

FY05 #1: The Air Force should adequately specify the operational requirements for each SBIRS Effectivity to achieve the timely development of the corresponding TEMP Annexes.
FY05 #3: The Air Force should resolve the differences in the concepts of operations being employed for the different phases of SBIRS testing in order to meet the integrated needs of the test program.
FY05 #4: The Air Force should conduct integrated operational testing of SBIRS HEO message certification for the System Effectivity 3/11 to meet the needs of certification and operational acceptance by U.S. Strategic Command.
- FY06 Recommendations. None.