

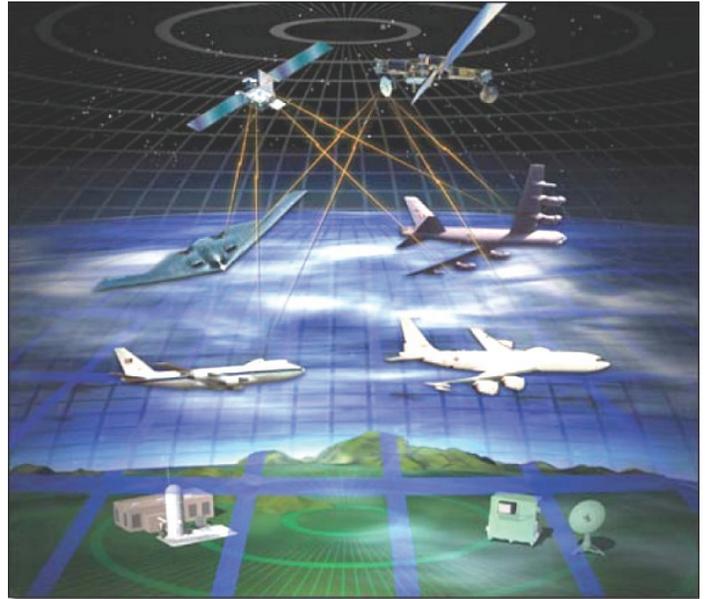
Family of Advanced Beyond Line-of-Sight Terminals (FAB-T)

Executive Summary

- The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program determined the remaining program cost exceeded its budget and has been working with its contractors to establish a new baseline. The program manager plans to seek approval of the new baseline by the Defense Acquisition Executive in 1QFY11. The program schedule is likely to slip by 21 months or more.
- The Air Force Operational Test and Evaluation Center (AFOTEC) conducted a second operational assessment (OA-2) in 4QFY09. Integrated developmental/operational flight tests aboard the test bed aircraft demonstrate the Advanced Wideband Terminal (AWT) is capable of over-the-air communication with other FAB-T terminals through the Milstar satellite.
- Based upon OA-2 results, the FAB-T Increment 1 AWT is not on track to meet mission requirements and not on track to become operationally effective and operationally suitable.

System

- FAB-T is an evolutionary acquisition program intended to provide ground- and aircraft-qualified beyond line-of-sight satellite communications terminals with the capability to move large amounts of information to and from ground installations and airborne platforms.
- FAB-T is intended to support both beyond line-of-sight and line-of-sight satellite communications (SATCOM) systems.
- Depending on the terminal configuration, capabilities may include transmission and reception of voice, data, imagery, and video as well as broadcast reception over protected and wideband satellites and line-of-sight systems.
- The FAB-T Program Office will develop Increment 1 terminals capable of providing air and ground communications using the Extremely High Frequency (EHF) and Advanced Extremely High Frequency (AEHF) waveforms. Increment 1 Airborne Wideband Terminals are planned for the B-2, B-52, and RC-135 aircraft. The Command Post Terminal (CPT) will upgrade the existing fixed and transportable terminals employed with the ground and airborne (E-4 and E-6B) command posts.
- The FAB-T program plans multiple hardware and software releases (referred to as 'Blocks') within Increment 1. Block 6 terminals are intended to be Low Data Rate capable and backward compatible with the legacy Milstar satellites. Block 6 terminals are developmental terminals and will not be



fielded. The plan is to field Increment 1 terminals in a Block 8 configuration that will be fully capable of operating with the AEHF satellites, in addition to being backward compatible with Milstar.

- Future capabilities of FAB-T include interoperability with two other satellite payloads:
 - Ultra High Frequency Follow-on - Enhanced/EHF satellite payload
 - Enhanced Polar System satellite payload.

Mission

The entire chain of command, including the President, the Secretary of Defense, Combatant Commanders, and support component forces, will use FAB-T for worldwide, secure, survivable transmission and reception of voice, data, imagery, and video. FAB-T is also intended to be used for broadcast reception over protected and wideband SATCOM systems to support the full range of military operations including nuclear warfare and all aspects of conventional warfare.

Major Contractor

The Boeing Company, Command, Control & Communication Networks – Huntington Beach, California

AIR FORCE PROGRAMS

Activity

- The FAB-T program manager determined that the remaining program cost exceeded budget and has been working with the contractor team to establish a new integrated baseline. The program manager plans to seek approval of the new baseline by the Defense Acquisition Executive in 1QFY11. The program schedule is likely to slip by 21 months or more.
- AFOTEC conducted OA-2 July through October 2009 to inform the AWT Low-Rate Initial Production (LRIP) decision originally scheduled for 2QFY10. The AWT and CPT LRIP decisions have been combined into one decision and moved into FY13, pending a new program baseline.
- AFOTEC is planning for a third operational assessment in FY12 to inform the LRIP decision scheduled for 1QFY13. AFOTEC plans to conduct an IOT&E in FY13 to inform the FAB-T Increment 1 full-rate production decision scheduled for FY14. The test schedule is contingent on approval of the new program baseline.
- The program manager conducted a reliability improvement test in 1QFY10.
- The integrated test team is updating the Test and Evaluation Master Plan (TEMP) to provide greater detail on future test events in preparation for the LRIP decision; to strengthen the testing in the threat environment; and to incorporate plans for reliability growth testing.
- The scheduled delivery of the FAB-T CPT does not support the Air Force need for command and control of AEHF. The Massachusetts Institute of Technology Lincoln Laboratory is developing an interim terminal to provide command and control of AEHF satellites until FAB-T CPTs are ready.
- The current program is schedule-driven, leading to an aggressive test schedule with little reserve for correction of any significant deficiencies discovered during software testing, formal qualification testing, and reliability growth testing.
- Qualification testing does not include over-the-air testing with AEHF satellites due to an aggressive schedule. Over-the-air testing with the AEHF constellation is planned after the LRIP decision.
- Reliability testing in 1QFY10 demonstrated that the AWT Block 6 terminals had a mean time between critical mission failure rate of 250 hours against a 785-hour requirement.
- The program has reinstated a more robust reliability growth test into their schedule and is currently planning the activity. However, the program has not defined their reliability growth program beyond the LRIP decision point; this may result in supportability risks to the program.
- The program did not anticipate the complexity of the AEHF Extended Data Rate waveform software development and integration effort, creating significant risk and schedule delays. The revised baseline schedule is designed to reduce concurrency risk of Block 8 development and integration paths. A result of reducing Block 8 concurrency risk is a potential 21-month or more delay to the LRIP decision.

Assessment

- Based upon OA-2 results, the FAB-T, Increment 1 AWT is not on track to meet mission requirements and needs further development and testing to become operationally effective and operationally suitable.
- Flight tests aboard the test bed aircraft during OA-2 demonstrated that the Block 6 AWT terminal is capable of over-the-air communication with other FAB-T terminals and legacy Air Force CPTs through the Milstar satellite. Multiple software failures led to a poor reliability result. The program manager has identified the root cause of the reliability problems and a fix is planned for Block 8. Reliability Growth Testing is planned to inform the LRIP decision.

Recommendations

- Status of Previous Recommendations. The Air Force is satisfactorily addressing the three FY09 recommendations.
- FY10 Recommendation.
 1. The Air Force should perform over-the-air testing with orbiting AEHF satellites during qualification testing to inform the LRIP decision.