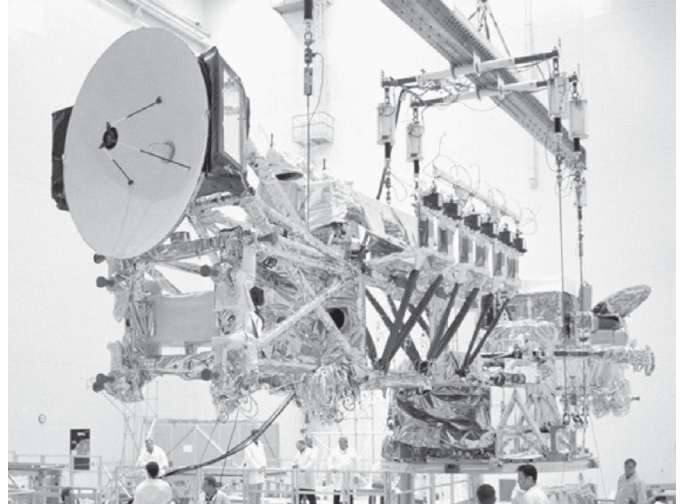


AIR FORCE PROGRAMS

Milstar Satellite System

SUMMARY

- The Air Force Operational Test and Evaluation Center (AFOTEC) adjusted its test strategy in response to an Air Force Space Command (AFSPC) decision to use Milstar Communications Planning Tool-Integrated as the primary Milstar communications resource and management tool.
- The Milstar Ground Mobile van retest by AFOTEC demonstrated that the system can provide reliable, sustainable control for the required endurance period.
- Evaluation of three critical measures of effectiveness – Survivable Monitoring and Planning, Communication Area Denied, and Nuller Antenna Effects – has been rescheduled until a fully fielded capability is achieved and tested as a Force Development Evaluation.
- Testing on the nulling antenna has been insufficient for a realistic operational evaluation.



The Milstar Space Segment, as currently fielded with low-data rate/medium-data rate capability, continues to perform well.

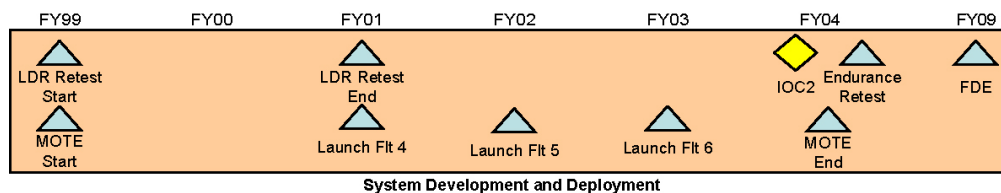
SYSTEM DESCRIPTION AND MISSION

The Milstar Satellite system accomplishes strategic and tactical missions through global communications that are secure, jam-resistant, survivable, and have a low probability of intercept. Milstar provides worldwide coverage for ground, airborne, submarine, and ship terminal communications connectivity. There are three Milstar segments: space, terminal, and mission control.

The Air Force launched six Milstar satellites between 1994 and 2003. The third Milstar launch placed the first low-data rate/medium-data rate satellite (Flight 3) in a non-operational orbit. In lieu of an additional Milstar satellite to replace Flight 3, AFSPC and the United States Strategic Command elected to wait for the first flight of the Advanced Extremely High Frequency satellite program currently scheduled for launch in 2007.

AFSPC declared Initial Operational Capability 1 for the low-data rate Milstar system in July 1997 and declared Initial Operational Capability 2 for the medium-data rate system in December 2003.

TEST AND EVALUATION ACTIVITY



During FY04, AFOTEC completed some open test activity and integrated all its test results in preparation of the final multi-Service operational test and evaluation (MOT&E) report. DOT&E has not yet received the final report.

AIR FORCE PROGRAMS

MOT&E of the low-data rate/medium-data rate satellites began in late FY01. AFOTEC completed low-data rate initial operational test and evaluation (IOT&E) in March 1997. DOT&E and AFSPC recommended that AFOTEC retest six measures of performance. Of these, AFOTEC retested three connectivity measures of performance during 1QFY00 and two suitability measures of performance between June 2000 and May 2001. AFOTEC completed the last of the six retests - Milstar System Endurance - during 2QFY04. DOT&E requested that AFOTEC retest System Endurance because the endurance capability test duration was insufficient. In response, AFOTEC conducted a full endurance test in FY04 using two Ground Mobile vans to control portions of the Milstar satellite constellation.

During FY04, AFSPC decided to use Milstar Communications Planning Tool-Integrated as the primary Milstar communications resource planning and management tool and Automated Communications Management System for specific functions to meet United States Strategic Command requirements. This decision, along with the launch failure of the third Milstar satellite, contributed to delays in completing critical operational evaluations required before Initial Operational Capability 2 declaration. Consequently, AFSPC redefined Initial Operational Capability 2 and postponed operational evaluation of three critical Milstar II requirements until 2005 when Milstar achieves a fully fielded capability. With AFOTEC's Milstar testing participation complete, responsibility shifts to AFSPC for this final phase of operational testing as a Force Development Evaluation. In addition, AFOTEC will test a hybrid version of the Mission Planning Element composed of a combination of both Milstar Communications Planning Tool-Integrated and Automated Communications Management System capabilities as indicated above.

The following measures of effectiveness remain under evaluation for Milstar II:

- Medium-data rate downlink antijam.
- Medium-data rate LPI/LPD.
- Medium-data rate uplink antijam.
- Medium-data rate uplink antijam.
- Information assurance.
- Survivable planning.
- Survivable monitoring and planning.
- Terminal data flow.
- Payload table generation.
- Problem resolution.
- Communication denied area.
- Nuller antenna effects.
- Resource utilization and requirements analysis.

TEST AND EVALUATION ASSESSMENT

The Milstar Space Segment, as currently fielded with low-data rate/medium-data rate capability, continues to perform well. Full assessment by DOT&E of medium-data rate operational effectiveness and suitability will follow after AFOTEC releases its MOT&E report.

The non-availability of Flight 3 capability reduces operational utility. Worldwide coverage from 65 degrees South to 65 degrees North latitude will not be available for the Milstar medium-data rate terminals until the launch of the Advanced Extremely High Frequency satellite in FY07. The lack of a fourth medium-data rate satellite limits the ability to provide two-satellite coverage to some contingency operations and, therefore, limits the throughput of protected communications. In addition, there is no medium-data rate coverage for approximately 25 degrees of longitude.

Proper interoperability evaluation of the Milstar system and terminals in an operational context requires testing of the Joint Task Force mission. Interoperability demonstrations conducted during developmental testing include the Joint Interoperability Test Command medium-data rate interoperability test. Initial results from these tests show coding, encryption, and modulation equipment incompatibility issues between Army and Navy terminals. Until the Joint Task Force concept of operations is better defined, it will be difficult to determine if the limited equipment used in these tests is operationally representative.

The system endurance retest demonstrated that the Ground Mobile vans could provide reliable, sustainable control of the Milstar constellation for the required endurance period. In this retest, AFOTEC evaluated system endurance, mission effectiveness, human factors, and the ability to rekey distant terminal crypto systems over-the-air.

The nulling antenna testing to date has been insufficient because it was not conducted in an operationally realistic scenario. The direct testing demonstration of communication during jamming has provided limited data collection to characterize the predicted and actual location of the antenna null in any particular event. In addition, no nuller models have been accredited for use in the evaluations of nuller performance during operationally realistic events.