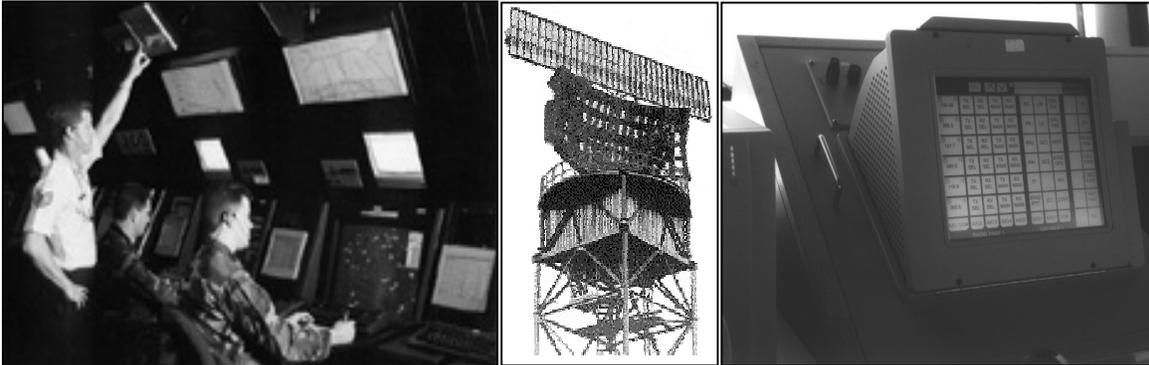


NATIONAL AIRSPACE SYSTEM (NAS)



The National Airspace System (NAS) program will replace three types of Air Traffic Control and Landing System (ATCALs) equipment used to support the radar approach control mission. NAS includes voice switches, approach control and control tower automation, and airport surveillance radars. When fully fielded, the DoD NAS program upgrade will include the following four programs:

- Voice Communications Switching System (VCSS) is the communications component of the National Airspace System (NAS) modernization program. VCSS is being procured to replace existing analog voice systems approaching the end of their economic and technical life cycle. VCSS is designed to provide highly reliable, state-of-the-art air-to-ground, ground-to-ground, and intercom communications for controllers of military and civil air traffic.
- DoD Advanced Automation System (DAAS) receives and process primary and secondary radar data, flight plan information, weather, airport environmental data, and administrative information (such as Notices to Airmen).
- Digital Airport Surveillance Radar (DASR) consists of integrated primary and secondary radar subsystems to provide accurate target data to the local air traffic control facilities. The DASR should have improved target detection and accuracy, clutter rejection, aircraft identification accuracy, altitude data, and weather capability.
- Military Airspace Management System (MAMS) will schedule, track, and document utilization of special use airspace in a non-real-time manner, as well as interoperate with the FAA. Scheduling agencies will access the MAMS central web site using desktop computers with Internet access.

BACKGROUND INFORMATION

The ATCALs equipment to be replaced has limited interoperability and excessive cost growth for operations and support. The Federal Aviation Administration (FAA) has undertaken a massive upgrade of the nation's air traffic control system infrastructure by replacing analog systems with state-of-the-art digital technology. Most DoD systems are currently analog and will not easily or economically interface with the new generation FAA equipment. Without the added capability, DoD will be unable to continue providing efficient and reliable service to all air traffic system users, military or civilian.

Furthermore, DoD NAS cost and operational effectiveness analyses indicate that DoD will experience excessive operations and support costs if the DoD air traffic control equipment is not replaced.

The FAA is the lead organization for VCSS and DAAS testing, with the Air Force serving as DoD lead for DASR testing and sole test agency for MAMS. DoD is working with the FAA through an interagency agreement for all VCSS, DAAS, and DASR test activities.

VCSS DoD MOT&E occurred throughout 1999. The VCSS was found operationally effective; however, it was rated not operationally suitable because of interrelated issues concerning parts reliability, maintainability, depot-level support, spares provisioning, and technical documentation. DOT&E reviewed corrective action taken after MOT&E and found them adequate to rectify the suitability shortcomings. The corrective actions, along with the high level of operational availability, inherent redundancy in the system, and demonstrated ability of the radar approach control and control tower to perform their operational missions, led DOT&E to conclude that VCSS was operationally suitable. The full-rate production decision was executed in November 1999.

MAMS was taken out of development to sustainment on October 1, 2000. Since then, three software versions have been released – one major release, and two minor releases. A third minor release is expected late 2001.

DAAS and DASR underwent combined DT/OT from October 1999 to January 2000 at Eglin AFB. Deficiencies were documented, some of which needed to be resolved before the start of the MOT&E, and others that needed to be resolved before full system fielding. Regression testing began in April 2000 at Eglin AFB and in June 2000, all deficiencies critical to the MOT&E were either verified as fixed or were downgraded in severity.

TEST & EVALUATION ACTIVITY

DAAS and DASR began parallel MOT&E at Eglin AFB in June 2000 in support of the NAS Milestone III decision. As a result of DAAS and DASR deficiencies (15 Category 1 deficiencies; six DAAS and nine DASR) documented during the MOT&E, AFOTEC agreed to stop the MOT&E in October 2000 to allow the Air Force and Raytheon to make changes in the software that drives the digital radar and automation systems.

MOT&E resumed in March 2001 at Eglin AFB and continued through mid-April 2001. AFOTEC released its interim summary report June 2001. While the DAAS was found operationally effective and operationally suitable, the DASR was found not operationally effective and potentially operationally suitable. Nine Category 1 deficiencies were associated with the DASR. Major areas of concern included the lack of management of false targets, probability of detection, susceptibility of interference, and the performance of the weather channel.

Since the interim summary report was released, the program office has embarked on an aggressive plan for the path forward, modified its acquisition strategy, and re-baselined the program schedule. The program office has proposed that the MOT&E be conducted in February through April 2002 with the Milestone III decision in September 2002.

During the briefing to the Air Force in August 2001 on the NAS Acquisition Program Baseline breach, the Program Executive Office sought approval of a second LRIP buy for the DAAS and the DASR in March 2002 based on the DT results. DOT&E expressed concern with this approach since the

decision will be made without the benefit of OT and without the full complement of deficiencies being addressed.

TEST & EVALUATION ASSESSMENT

DOT&E shares concerns with AFOTEC over the immaturity of the DASR configurations that have been presented for OT. After each test period, critical deficiencies were identified and the program office implemented plans to fix, regression test, and re-test operationally. During each test event, similar or additional deficiencies were documented.

DOT&E will work with AFOTEC, the program office, and users to establish credible re-entry criteria for the MOT&E. The program office must resolve all issues and operational impacts identified in AFOTEC's interim summary report. The test community must receive a coordinated position from the user community clarifying the false targets and probability of detection definitions in the Operational Requirements Document. The FAA must provide its detailed analysis on the DASR software that will undergo more MOT&E. Configuration audits must be complete and agreed upon by FAA and DoD users.

This Page Is Intentionally Left Blank