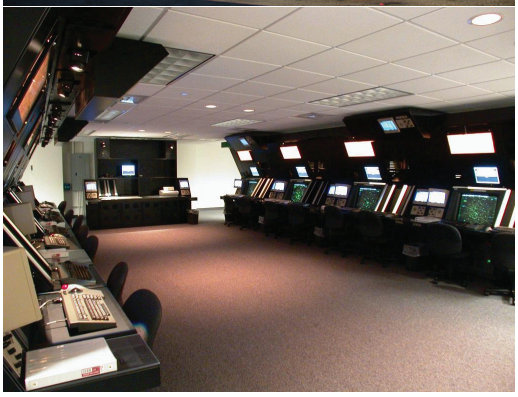
DoD National Airspace System (NAS)

Executive Summary
- The Air Force completed DOT&E-recommended operational testing for three significant DoD National Airspace System (NAS) upgrades implemented since initial fielding. These upgrades improved system processing capacity and integration with foreign air traffic operations.
- The DoD NAS program continues to improve information assurance controls and procedures. A joint DoD and Federal Aviation Administration (FAA) working group is developing a common DoD and FAA information assurance control set to address information assurance concerns outlined in the 2009 DOT&E DoD NAS FOT&E Report and the 2009 Air Force Operational Test and Evaluation Center DoD NAS FOT&E Report. The program projects that a final Authority to Operate (ATO) certification will be achieved in FY12.

System
- The DoD NAS is a joint program with the FAA to upgrade Air Traffic Control (ATC) automation equipment and supporting radar and communications systems at designated FAA and military installations, both inside and outside the continental United States.
- The DoD NAS is comprised of the DoD Advanced Automation System, Digital Airport Surveillance Radar, and Voice Communication Switching System. These systems provide modernized capabilities and improve interoperability between DoD, FAA, and host-nation ATC facilities at foreign DoD operating locations.

Mission
- Military air traffic controllers will use the DoD NAS to direct ATC operations in DoD-controlled airspace. Specific mission tasks include radar identification and tracking, air-to-ground voice communication, aircraft separation, and air traffic sequencing.



- DoD and FAA ATC facilities use the DoD NAS to accomplish a seamless transition of aircraft between military and FAA controlled airspace.

Major Contractors
- Raytheon Network Centric Systems – Marlboro, Massachusetts
- Litton-Denro Inc. – Gaithersburg, Maryland

Activity
- In 2010 and 2011, the Air Force Flight Standards Agency (AFFSA) completed a series of DOT&E-directed operational tests to assess the performance of three DoD NAS pre-planned product improvements. These system improvements include the Automated Protocol Exchanger (APEX) to facilitate DoD NAS integration with foreign air traffic control systems, the Advanced Signal Data Processor (ASDP) intended to expand data processing capacity, and a Mono-Pulse Secondary Surveillance Radar (MSSR) Mode S transponder upgrade. AFFSA conducted APEX operational testing at Yokota Air Base, Japan, in November 2010. ASDP and MSSR operational testing was conducted at Royal Air Force Lakenheath Air Base, United Kingdom, in July 2011.
- The DoD NAS joint program office, Service representatives, and the FAA, formed a joint working group to assess information assurance shortfalls identified in the 2009 AFOTEC FOT&E report. This working group identified differences in DoD and FAA information assurance controls and standards, and sought to identify mutually acceptable strategies for reducing operational security risks in areas such as computer account authentication, user identification, and account management procedures.

Assessment

- AFFSA operational testing demonstrated that the ASDP, APEX, and MSSR preplanned product improvements were successfully integrated into the fielded DoD NAS system. Operational sites equipped with these upgrades continue to provide timely and accurate radar and air traffic information to support air traffic control operations. The ASDP upgrade provides the same operational capabilities as the legacy system, but with the expanded processing capacity necessary to accommodate future air traffic system upgrades. The enhanced capabilities provided by APEX reduce controller workload when transferring control of aircraft to and from host-nation air traffic control facilities. The upgraded MSSR provides Mode S transponder capabilities necessary to support operations within high-density European airspace. These improved system capabilities enhance the effectiveness of the baseline DoD NAS system assessed as operationally effective during the 2009 AFOTEC FOT&E.
- The MSSR upgrade also addressed previously identified diminishing manufacturing source challenges to enhance long-term system sustainment. However, AFFSA test results indicate that logistics support systems for ASDP and MSSR upgrades are immature. Rapid access to spare parts is an ongoing concern for field operating locations.
- The DoD NAS program continues to improve information assurance controls and procedures. Based on the work of the joint information assurance working group, a common DoD and FAA information assurance control set is being developed for implementation. In the interim, the DoD NAS system continues to operate under an Interim ATO network certification. The program projects that a final ATO network certification will be achieved in FY12. In addition, the program has not yet completed actions necessary to achieve full joint interoperability certification.

Recommendations

- Status of Previous Recommendations. The Air Force addressed the FY09 recommendations for follow-on operational testing of planned DoD NAS system upgrades and a review of DoD and FAA information assurance controls and standards.
- FY11 Recommendations. None.