

DMSMS Team Achievement Award
AWACS Block 40/45 Upgrade program



The AWACS Block 40/45 Upgrade program is the largest modification in U.S. AWACS history and represents the critical foundation and baseline system required for all future AWACS enterprise modifications including net-centric operations. The AWACS Block 40/45 program is an ACAT-1 MDAP valued at \$2.7B and provides numerous performance improvements including single target/single track capability, Electronic Support Measures sensor data processing, Multi-Source Integration, and a low-bandwidth internet chat capability. Block 40/45 also upgrades the Passive Detection System (PDS) and radar cabin electronics to address DMS issues and to improve their capability. These Block 40/45 capabilities are supported with new Ground Systems which provide enhanced mission planning and post-flight analysis and upgraded training system and labs.

The AWACS Block 40/45 program has fully embraced robust mitigation of DMS issues through use of industrial-grade equipment, life-of-type purchases, competition of a Performance Based Logistics maintenance concept, and forward-thinking Data at Rest requirements.

The AWACS Block 40/45 Program is reducing the frequency of major upgrades due to Diminishing Manufacturing Sources (DMS) issues with DMS version 4, which upgrades onboard hardware to industrial-grade and doubles the expected lifetime of the equipment from 5 to 10 years. As the name implies, DMS 4 is the fourth time the Block 40/45 program has had to conduct a major design change due to DMS equipment. With the change to industrial-grade equipment, the program is taking a huge step forward in both system performance and maintainability. The final phase of the 40/45 program will be to bring all 31 aircraft to the DMS 4 baseline which, in addition to reducing upgrade cycles, drastically simplifies maintenance and training, further saving funding while improving warfighter proficiency and performance. The 40/45 performance has been demonstrated at nearly double the threshold Material Reliability while saving \$7.5M in maintenance costs per year! The 40/45 program is moving to a Performance-Based Logistics sustainment model with active DMS monitoring which will provide the ability to keep all parts of the system supported and performing while eliminating the need for another ACAT 1 level block upgrade.

Reduced Total Ownership Cost:

The use of industrial-grade equipment in DMS version 4 is expected to save \$62M over the remaining lifetime of the system by avoiding 2 DMS version upgrades.

The program is implementing at Data at Rest requirement for the classified data on the aircraft, which has not been done before on AWACS or similar aircraft. This requires starting from scratch on a solution which will meet the unique requirements of the data protection and the existing aircraft, to include insulation from DMS issues to the maximum extent possible. The program is on the leading edge of Data at Rest solutions for the Department of Defense, working with several Navy programs to explore similar solutions to save costs to the Government. Approval of this solution requires significant coordination with the National Security Agency, Department of Defense Authorizing Officials, and other cyber-related communities.

The Block 40/45 hardware and software have potential for adaptation for our international AWACS partners and in fact the France and Japan programs have gained some efficiencies by utilizing some of the 40/45 design, helping to strengthening our international partnerships in line with the DoD Strategic Plan.

Coordination for the 40/45 program includes a vast pool of interested parties. Requirements are driven from ACC as informed by PACOM, EUCOM, CENTCOM, NORTHCOM, and the 552 ACW. As an ACAT 1 program, operational test is run by AFOTEC with interest from HAF/TE and OSD/DOT&E oversight list for much of the program. Moreover, coordination is required with the cyber community for ATOs with additional critical compliance requirements and approvals with the National Security Agency and other DoD offices due to the presence of classified data on the system.