Mission Planning Systems (MPS) / Joint Mission Planning Systems – Air Force (JMPS-AF)

Executive Summary

- The Air Force paused IOT&E of the E-8 Mission Planning Environment (MPE), the representative test platform for the Joint Mission Planning System – Air Force (JMPS-AF) Increment IV mission planning functionality, in September 2011 to allow the Program Office to develop and integrate corrective actions to deficiencies identified during operational testing.
- In January 2012, the DOT&E Major Automated Information System (MAIS) report documented deficiencies in the E-8 MPE version 1.0 realized during the suspended FY11 IOT&E. These deficiencies included incomplete printed flight plans, errors in flight calculations for station magnetic variation, problems with exporting mission flight plans, inadequate training for intelligence specialists, unreliable and time-consuming system setup and installation, and excessive time needed for routine maintenance.
- Following additional development and regression testing, the Air Force certified E-8 MPE version 1.3 ready for resumed operational testing. Air Force Operational Test and Evaluation Center (AFOTEC) will re-execute the entire IOT&E in early FY13 in accordance with the DOT&E-approved test plan.

System

- A Mission Planning System (MPS) is a Standard Desktop Configuration (SDC)-based common solution for Air Force aircraft mission planning (the current SDC is Windows XP® or Vista® PC-based). It is a package of common and platform-unique mission planning applications.
- An MPE is a set of developed applications built from a Framework, common components, and Unique Planning Components for a particular aircraft. The Framework is the basis of the MPE. Software developers add common components (e.g., Weather, Electronic Warfare Planner, etc.) and federated applications that support multiple users to the framework. Developers then add a Unique Planning Component for the specific aircraft type (e.g., E-8) to complete the MPE.

- The MPE can operate as an unclassified system or a classified system.
- Although the Framework software is being co-developed among DoD components, MPS is not a joint program. Each Service tests and fields its own aircraft-specific MPEs.
- The representative test platform for JMPS-AF Increment IV mission planning functionality is the E-8 MPE.

Mission

Aircrews use MPS to conduct detailed mission planning to support the full spectrum of missions, ranging from simple training to complex combat scenarios. Aircrews save the required aircraft, navigation, threat, and weapons data on a data transfer device that they load into their aircraft before flight.

Major Contractors

- Northrop Grumman – Carson City, California
- Boeing – St. Louis, Missouri
- TYBRIN Corporation – Fort Walton Beach, Florida

Activity

- The Air Force conducted all MPE operational testing in accordance with a DOT&E-approved Test and Evaluation Master Plan.
- AFOTEC did not complete IOT&E of the E-8 MPE version 1.0 due to deficiencies in: navigation functionality; magnetic variation computation; mission loading; take-off

and landing computations; inadequate intelligence specialist training; unreliable system set up/installation; and excessive time needed for routine maintenance. AFOTEC returned the system to development for corrective action.

- The 46th Test Squadron at Eglin AFB, Florida, conducted developmental regression testing of E-8 MPE version 1.3 from

June through August 2012. The purpose of this test was to verify deficiency fixes, identify changes from the E-8 JMPS Version 1.0 MPE Report, and determine E-8 JMPS version 1.3 MPE readiness to resume IOT&E.

- Based on results from the E-8 MPE regression testing, the Air Force certified E-8 MPE version 1.3 ready for IOT&E in September 2012. AFOTEC will re-execute the IOT&E beginning in early FY13 in accordance with the DOT&E-approved test plan.

Assessment

- In February 2012, DOT&E published a MAIS report concluding that E-8 MPE version 1.0 was operationally suitable with limitations but not operationally effective. Significant findings included:
  - The time needed for E-8 MPE software installation was lengthy, due in large part to anomalies in the software functionality and installation process.
  - Threat database information was not easily accessible or usable. E-8 MPE training for intelligence specialists was inadequate.
  - While mission planners could use E-8 MPE version 1.0 to generate timely mission plans, they were unable to transfer some of these mission plans to the aircraft.
  - The MPE generated magnetic variation errors for user-specified waypoints. Developers identified critical calculation errors of the magnetic variation errors and

incorporated fixes during 2012 developmental testing. AFOTEC will verify these corrections during the E-8 MPE version 1.3 IOT&E.

- Mission planners could not plan missions with in-flight delays. Developers incorporated fixes during 2012 developmental testing and AFOTEC will verify these corrections during the E-8 MPE version 1.3 IOT&E.
- The Take-Off and Landing Data (TOLD) module in E-8 MPE version 1.0, as well as in other platform MPEs tested and evaluated, does not generate accurate data and is not certified for flight use. The Automated TOLD capability is not integrated into version 1.3, and the Air Force has deferred incorporation of this objective capability to a future MPE release.

Recommendations

- Status of Previous Recommendations. The Air Force is addressing previous recommendations. However, the Air Force has yet to incorporate automated TOLD capabilities into the MPE.
- FY12 Recommendations. The Air Force should:
  1. Incorporate automated TOLD capabilities into the E-8 MPE.
  2. Re-execute the entire E-8 MPE IOT&E in accordance with the DOT&E-approved test plan in order to verify corrective actions and determine the system's operational effectiveness, suitability, and mission capability.