F/A-22 – Advanced Tactical Fighter

Executive Summary
- The F/A-22 successfully demonstrated mission capability in air-to-air mission roles during IOT&E. Air-to-ground mission capability is to be determined through the follow-on testing now in progress.
- Operational testing identified several areas for improvement, including: avionics, weapons integration, diagnostics accuracy, low observable repair, and technical order data.
- Continued improvement is needed in operational suitability to ensure the weapons system is available and sustainable in combat operations.
- Follow-on testing is needed to ensure the improvements to the F/A-22 have the desired effect on battlefield performance, to confirm fixes, and to perform previously deferred testing.

System
- The F/A-22 is an air superiority fighter that combines low observability to threat radars, sustained high speed, and integrated avionics sensors.
- F/A-22 low observability reduces threat capability to engage it with current weapons.
- It maintains supersonic speeds without use of afterburner.
- Avionics designed to fuse AESA radar, other sensor, and data-linked information for the pilot—enables employment of medium- and short-range air-to-air missiles, and gun.
- It is intended to be more reliable and easier to maintain than current fighter aircraft.
- Its air-to-air weapons are the AIM-120C radar-directed missile and the AIM-9M infrared-guided missile.
- It is developing air-to-ground precision strike capability with two 1,000 pound Joint Direct Attack Munitions.

- The F/A-22 program is designed to deliver capability in increments.

Mission
- A unit equipped with the F/A-22 is designed to:
  - Provide air superiority over friendly or enemy held territory
  - Defend friendly forces against fighter, bomber, or cruise missile attack
  - Escort friendly air forces into enemy territory
- Its intended air-to-ground capability includes counter-air, strategic attack, counter-land, and, eventually, enemy air defense suppression missions.

Activity
- Air Force Operational Test and Evaluation Center (AFOTEC) completed IOT&E in December 2004; DOT&E delivered the beyond low-rate initial production report on March 10, 2005. The test was conducted in accordance with the test plan approved by DOT&E.
- Air Combat Command began a series of user tests in February 2005 to test fixes and aid in tactics development. This series of tests, known as Force Development Evaluations, will conclude in early 2006.
- AFOTEC conducted the first Follow-on Operational Test and Evaluation (FOT&E) between August and November 2005. This FOT&E included air-to-ground strike capability using the 1,000-pound variant of the Joint Direct Attack Munition. DOT&E continues to review the data and will report on results at the Defense Acquisition Board planned for early 2006.
- The Air Force plans to incorporate better equipped adversary aircraft for the upcoming FOT&E of Increment 2 capability, planned to begin in 2006.

Assessment
- At the end of IOT&E, DOT&E determined that the F/A-22, in the air-to-air mission role, was operationally effective and survivable, but not operationally suitable. The F/A-22 was successful in 90 percent of its mission trials, but demonstrated a need for more maintenance resources and spare parts than planned.
- The Air Force identified 351 individual deficiencies for correction. Areas needing improvement included avionics capabilities, weapons integration, diagnostics accuracy, low observable repair, and technical order data.

Recommendation

1. The Air Force should address IOT&E test limitations and test the F/A-22 against adversary aircraft and other threat systems that are representative of the intended operational environment.