Boeing Demonstrates JSF Weapon System Capabilities During Live-Fire Exercise

Boeing successfully demonstrated the integrated weapon system capabilities of its Joint Strike Fighter design today during a live-fire exercise conducted at White Sands Missile Range, N.M.

The Boeing JSF Avionics Flying Laboratory (AFL), a modified 737-200, used its JSF mission systems suite to gather targeting data from off-board systems and fuse it with data gathered from on-board systems. The AFL then provided refined targeting information to an F-15, allowing it to attack a ground target with a GPS-guided Joint Direct Attack Munition.

The AFL's on-board sensors also provided a target damage assessment to both airborne and ground-based exercise participants.

"This demonstration proved that our JSF mission system concept will allow multiple assets to cooperate in a system-of-systems environment and contribute to the successful execution of a complex mission," said Dan Cossano, JSF avionics manager. "The ability to fuse inputs from multiple sensors and display the information in an easy-to-use format for the pilot and other members of the joint force is a key element of the Boeing JSF mission systems suite."

The exercise also proved that the Boeing mission systems will improve the JSF's lethality and survivability, two key program goals. The systems' ability to obtain information via off-board systems allows the pilot to locate and attack enemy targets without emitting signals, making the aircraft less vulnerable to detection. In the live-fire exercise, the F-15 did not emit any signals since its target data came from the AFL.

During the exercise, the AFL used its Joint Tactical Information System (JTIDS) to send and receive information in LINK-16 data format. JTIDS capability enabled the AFL to receive off-board data -- air tracks and synthetic aperture radar maps -- process it, and then transmit the data package to the other exercise participants. The Boeing JSF open system architecture allowed easy integration of the LINK-16 capability into the AFL's JSF mission systems suite.

The exercise also demonstrated automatic target cueing, image registration and battle damage assessment using AFL sensors.

"No one has successfully put all of these capabilities together in a single platform before," Cossano said. "Our open system architecture allowed us to develop multiple technologies and integrate them with 600,000 software lines of code on time and within budget."

Boeing and its JSF One Team members Raytheon and Sanders began testing the JSF's integrated avionics on the AFL in December 1999. Since then the aircraft has flown 42 missions and 100 hours, with approximately 20 more planned during the seven-month risk-reduction avionics flight-test program.

"This live-fire exercise is a key element in demonstrating our overall integrated weapon system concept," said Dennis Muilenburg, director of the JSF weapon system. "In combination with our full-mission simulation demonstration, full-scale signature and supportability pole model testing, and X-32 flight-testing, we are reducing risk across the entire spectrum of our JSF Preferred Weapon System Concept."

The industry leader in avionics integration, Boeing also is developing and integrating avionics on the F-22 and F/A-18E/F programs.

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