

Lockheed Martin JSF Fuses Off-Board And On-Board Avionics Data To Acquire Targets In Attack Scenarios

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The Lockheed Martin Joint Strike Fighter (JSF) team has successfully demonstrated revolutionary all-weather precision targeting and combat identification techniques for both fixed and mobile targets.

In a cooperative engagement between a Joint Surveillance Target Attack Radar System (Joint STARS) aircraft and the Northrop Grumman-owned JSF cooperative avionics test bed (CATB), the Lockheed Martin JSF acquired and derived targeting data of high-value stationary and moving targets during simulated attacks at Aberdeen Proving Grounds, Md.

"With its stealth and its ability to acquire targets remotely with radar off, the Lockheed Martin JSF represents an extremely lethal deep-penetration threat," said Harry Blot, vice president and deputy program manager for the Lockheed Martin JSF. "These demonstrations prove the Lockheed Martin JSF will be ready for real-world action in the air-to-surface situations of tomorrow."

Joint STARS, a battle management system that detects, locates, classifies, tracks and targets fixed and moving ground targets, operated successfully in Desert Storm, Bosnia and Kosovo.

The first Joint STARS/JSF CATB scenario demonstrated an all-passive cooperative engagement, with the JSF executing a "silent ingress" (radar and communications systems switched off) and receiving all target-acquisition information from Joint STARS at long range.

Flying at typical operational ranges and altitudes during the demonstration, and using high-value relocatable moving targets (tanks, supply convoys, missile launchers, etc.), Joint STARS detected and relayed the information via a real-time data link to the JSF CATB avionics system. JSF CATB used the data to cue its electro-optical targeting system (EOTS) to passively locate and track the moving targets for pilot identification and weapon delivery at standoff ranges.

In the second scenario, Joint STARS detected the high-value moving targets at long range and relayed the target location to JSF CATB. Joint STARS target data then cued JSF's all-weather, long-range Active Electronically Scanned Array (AESA) radar, which used its simultaneous synthetic aperture radar/ground-moving-target indication (SAR/GMTI) mode to re-acquire and locate the targets with the same precision as Joint STARS. The AESA then increased the SAR/GMTI resolution for a precision single-ship attack. The demonstrations merged the data from Joint STARS with the JSF CATB, resulting in greatly improved targeting.

"By demonstrating interoperability with Joint STARS, as well as improved target acquisition and engagement of strategically relocatable targets, this avionics system has proven the lower risk and superior performance we have been forecasting for our JSF program," said Northrop Grumman's Peter Shaw, mission systems director for the Lockheed Martin JSF.

Lockheed Martin and its JSF mission-system team members Northrop Grumman Electronic Sensors and Systems Sector, Litton Systems, LM Sanders, LM Missiles and Fire Control, Kaiser, and Harris Corp. have been testing JSF integrated avionics on the CATB BAC 1-11 aircraft since February.

Lockheed Martin produces the world's most advanced and successful fighter aircraft, including the F-22, F-117 and F-16. The company, in partnership with Northrop Grumman and BAE SYSTEMS, is in competition to build the JSF for the United States and Great Britain. Government selection of a single contractor for the Engineering and Manufacturing Development phase is set for 2001.

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