Boeing Avionics Help Guide F-22 Missile to Its Target

The F-22 program achieved a major milestone Sept. 21 when Raptor 4005 fired an AIM-120C Advanced Medium-Range Air-to-Air Missile, or AMRAAM, for the first time against a drone at Point Mugu Naval Test Range, Calif. The missile was guided by avionics software integrated by Boeing.

The AMRAAM closed to within optimum range of the target seconds after launch high over the Pacific test range. The guided missile launch demonstrated the F-22's ability to detect and track a long-range target. This is the fourth significant avionics milestone to be accomplished this year as the F-22 weapon system builds up to an initial operational test by the U.S. Air Force in 2003.

The aircraft used the Block 3.0 avionics software developed and tested by Boeing. The advanced software incorporates avionics integration including sensor fusion. Sensor fusion occurs when targeting, detection and tracking information is fused from multiple sensors to create a single input to the pilot.

"The key to the successful missile shot is the unprecedented level of avionics and weapons integration by Boeing workers here in Seattle and at other F-22 sites," said Henry Brandis, a lead weapon system engineer at Boeing.

Boeing has been testing avionics software packages in its Avionics Integration Lab since 1998, on its 757 Flying Test Bed since March 1999, and on the F-22 Raptor flight test aircraft since January 2001.

The missile shot comes a month after the Defense Acquisition Board approved production of 10 F-22 aircraft, allowing the program to enter low-rate initial production. Boeing is teamed with Lockheed Martin, Pratt & Whitney and the U.S. Air Force to develop the F-22. Boeing supplies the F-22's wings, aft fuselage, avionics systems, training and life-support systems. A Northrop Grumman-led joint venture with Raytheon, under contract to Boeing, is developing, testing and manufacturing the radar system for the F-22.

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