F-35 pilots, Navy Collaborative Combat Aircraft Hone Tactics in Joint Simulation Environment

An F-35 Lightning II is shown operating alongside Collaborative Combat Aircraft in a conceptual graphic illustrating their integration. The unmanned systems serve as wingmen, enhancing mission effectiveness by supporting manned aircraft pilots with critical tasks. (U.S. Navy graphic)

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NAS PATUXENT RIVER, Md.– The Naval Air Warfare Center Aircraft Division (NAWCAD) achieved a milestone in advancing F-35 Lightning II aircraft integration with the Navy's Collaborative Combat Aircraft (CCA) during a recent tactical demonstration in its Joint Simulation Environment (JSE).

The event demonstrated how advanced modeling and simulation can develop tactics and strategies for fifth-

generation aircraft like the F-35 operating with uncrewed combat systems.

“Modern warfare is demanding more from our aviators,” said NAWCAD Commander Rear Adm. Todd Evans. “This milestone shows the Joint Simulation Environment’s impact on equipping them with the advanced tactics they need to win future battles.”

During the demonstration, F-35 pilots used touch-screen tablets to control multiple CCA during simulated missions. Using advanced operational communication systems and precision-guided missiles, pilots engaged complex threats in the JSE’s highly realistic virtual environment.

The JSE is the Department of War’s state-of-the-art digital test and training range that replicates real-world combat scenarios in a virtual environment. Built by NAWCAD engineers, the JSE combines cockpit simulators, advanced software, and domed visual displays to allow pilots to train and test systems in a safe, controlled setting. The JSE enables pilots to fly more sorties in one week than they can on open-air ranges in a year, sharpening their skills and improving readiness.

The Navy’s CCA are multi-role uncrewed combat vehicles that will operate with crewed fighters enhancing the mission effectiveness of crewed platforms in highly contested environments. They are central to the Department’s future strategy, enabling pilots to focus on high-level decision-making while expanding operational capabilities. The JSE is playing a key role in developing tactics and operational concepts for integrating these systems with fifth-generation platforms like the F-35.

NAWCAD’S JSE continues to integrate additional platforms and enhance the fidelity of its simulated environment with planned additions of the E-2D Advanced Hawkeye, F/A-18E/F Super Hornet, and EA-18G Growler to enable integrated test and

training in fiscal year 2026.

NAWCAD hosts dozens of squadrons and hundreds of pilots annually, fostering joint and international collaboration in advanced air combat training. The JSE is expanding with additional Navy and Air Force facilities under development at Naval Air Station Fallon, Nellis Air Force Base, and Edwards Air Force Base, to train tactical pilots.

NAWCAD employs military, civilian, and contract personnel. It operates test ranges, laboratories, and aircraft in support of test, evaluation, research, development, and sustainment for all Navy and Marine Corps aviation platforms. Based in Patuxent River, Maryland, NAWCAD also has major sites in St. Inigoes, Maryland; Lakehurst, New Jersey; and Orlando, Florida.