At the same time that service and industry team members are enhancing flight tests of the next-generation Apache Block III aircraft, a prototype U.S. Army Apache battalion recently arrived in theater equipped with revolutionary new tactical capabilities.

Called video unmanned aircraft system intelligence teaming (VUIT)-2, the kit-based system enables Apache crews to view streaming video and metadata from the Shadow, Raven, Hunter, Predator, Warrior A, Reaper and other unmanned aircraft systems (UAS), providing Army Aviation with a manned-unmanned teaming capability that significantly improves battlefield intelligence, surveillance and reconnaissance, as well as targeting and acquisition.

“VUIT-2 is a datalink system for the Apache aircraft that will enable the Apache crew to see real-time video from unmanned aircraft systems that are flying overwatch in theater and display that video on the multifunction displays right in the cockpit,” explained Bill Murtha, Lockheed Martin VUIT-2 program director. “VUIT-2 also provides the ability for the Apache to downlink ‘own sensor’ video from the multisensor towed array detection system (MTADS) or the unmanned aircraft video that it is receiving down to ground forces that are equipped with the OSRVT—the one system remote video terminal.”


“It’s video from UAS for interoperability teaming. It actually receives video from unmanned aerial vehicles (UAVs) and then also provides the ability to send the Apache MTADS video to local supported ground commanders.”

Noting that the OSRVT is currently used on some platforms in theater, including the A2C2S Black Hawk, Stryker vehicles and elements of Task Force ODIN (observe, detect, identify and neutralize), he added, “This is similar to Task Force ODIN except that it’s installed on the Apache.

“It solves the problem of sharing information,” Col. Johnston continued. “As you’re coming up onto an area, and you’re supporting some troops in contact, they are describing to you what’s going on, where the bad guys are located, which white vehicle with the orange fender is the actual bad guy. That’s hard to do via voice. But if you can send a picture or streaming video of the situation, that gives clarity and real-time situational awareness. Ultimately it reduces the sensor-to-shooter timeline that the Army is on a quest to reduce, getting inside the enemy’s decision-making cycle.”

The program was built on the success of the 2006 hunter standoff killer team (HSKT) advanced concept technology demonstration (ACTD).

Program participants noted that the previous Vice Chief of Staff of the Army, Gen. Richard Cody, initiated VUIT-2 as a quick reaction program to provide Apaches with the ability to see the video provided by an increas-
ing number of UAS flying in theater.

“We met with PM UAS back in 2007, and we put together a quick plan, a seven-page briefing chart, and took that idea to Gen. Cody,” Col. Johnston said. “Gen. Cody said, ‘I like the program.’ By June 2007 we had a directed requirement signed by the G-3 of the Army.”

Emphasizing the partnership between the Army and industry to make this happen in record time, Murtha added, “From the kickoff meeting for that quick reaction capability program until it was flight demonstrated was six months, which is really very rapid in today’s acquisition cycles.”

“I would emphasize that this is truly a very good partnership between the Army and industry. From an Army perspective, PM Apache is obviously the leader here. AATD [Army Aviation Applied Technology Directorate] at Fort Eustis, Va., is the integrator of the first unit and has led the flight-testing activities. PM UAS has supported the activity. From an industry standpoint, Lockheed Martin is the prime system integrator. And we are working closely with L3 Communications in Salt Lake City, Utah, and AAI, a unit of Textron, in Baltimore, Md., as well as a number of other subcontractors,” Murtha said.

“We identified the first unit and we brought the unit in to do the training for VUIT-2,” Col. Johnston continued. “From the HSKT experience, I knew there was going to be a lot of ‘push-back.’ People are resistant to change, and new concepts and ideas sometimes aren’t easily recognized by newcomers. So we went through a process here in Huntsville, Ala., where we brought in the senior pilots from the unit it was going to—the standardization instructor pilot, the instructor pilot, senior front seaters, the tactical operations officer—and sat them down and trained them on VUIT using an Apache training aid, developed here by Camber, which goes through the ‘A kit,’ the ‘B kit’ and the system of VUIT in component detail. Then we put them in the simulator and had them doing missions using VUIT with the video feed into the cockpit. We went through scenarios like that. The very last scenario returned to the traditional way of not having that video feed into the cockpit, just so they would get a clear understanding of the difference between VUIT and ‘not VUIT.’ When they finished that mission, they were all convinced. One of the slogans that came out of this initial train-up period was: ‘Without VUIT, you can’t do it.’ The unit has fully bought into the idea of manned and unmanned teaming.”

The government and industry team is currently involved in activities to move to production the QRC/prototype battalion design to make VUIT-2 more maintainable and sustainable for follow-on battalions.

“Obviously we would like to field, per our directed requirement from Department of the Army headquarters, up to 10 battalions,” Col. Johnston explained. “The funding for that program has yet to arrive. So we are doing a little bit of production activity and trying to keep the team together at Lockheed Martin. Through AATD’s initial contract with Lockheed Martin for the prototype battalion, we have been upgrading the current battalion’s capability through software improvements, based on lessons learned from the unit at National Training Center. Yet another software build is coming in later, and we are going to take lessons learned from their initial few months in theater so we can make additional improvements to the prototype system. Ultimately, when the funding arrives from the Army, which is expected in the fiscal year 2009 supplemental budget, we will try to put Lockheed Martin on contract, pending sole-source authorization, and then move forward to build 10 battalions.”

Program representatives were careful to clarify that the Army’s end-state requirement for Apache remains Block III, which includes Level 4 ability to control the UAS itself. However, VUIT-2 provides a critical “bridging capability” toward that eventual end state.

“On the Block III bridging strategy, our plan is to install VUIT on our Block II aircraft that will be in the fleet until 2025,” Col. Johnston said. “So, as Block III starts fielding in 2011, the VUIT-2 system that we are paying for now will still be out in the field. It’s not just out there until the start of Block III. It’s going to take time to get the fleet fully modernized to Block III. We will get use out of the system through 2025.”

Reiterating that the first VUIT-2 equipped battalion had just arrived in theater, he added, “We are eagerly awaiting feedback from the unit.”

A VUIT interface panel (left) and VUIT power panel in the cockpit operate the VUIT-2 system installed in a prototype Apache battalion that recently arrived in theater.