L3Harris Develops Torpedo Tube Launch and Recovery System for AUVs

L3Harris' Torpedo Tube Launch and Recovery system can launch and recover Iver4 900 uncrewed underwater vehicles, like the one shown here in the L3Harris booth, from submarine torpedo tubes. (Credit: Brett Davis)

By Richard R. Burgess, Senior Editor

ARLINGTON, Va. – The Navy's requirement to develop a method of launching and – more challenging – recovering autonomous underwater vehicles from torpedo tubes of submarines is being met by L3Harris Technologies (Booth 937), which has been awarded an Other Transaction Authority contract from the Department of Defense's Defense Innovation Unit to deliver the Torpedo Tube Launch and Recovery (TTLR) system.

The TTLR has demonstrated its ability to launch and recover Iver4 900 AUVs through attach submarine torpedo tubes.

“The Torpedo Tube Launch and Recovery system is not a future capability, it’s answering combatant commander needs today,” Nino DiCosmo, president, Maritime, Space & Mission Systems, L3Harris, said in a company release. “Our system is the first to successfully launch and recover AUVs from a submarine, providing commanders flexibility for persistent undersea operations and maintaining essential stealth.”

The Iver4 900 AUV is payload agnostic, said J.R. Gear, vice president and general manager of Integrated Systems and Encryption for L3Harris, in an interview, noting the system would be capable of missions such as seafloor mapping, counter-mine warfare and other intelligence, reconnaissance and surveillance missions.

“We try to build it with some modular interfaces that you could have one type of mission one day from a submarine and then swap out the sensor and swap out the batteries and [gain] maybe a little bit more range and endurance or whatever and tailor the vehicle for today’s mission,” he said. “Very adaptable.”

Gear was not at liberty to describe the details of how the AUV swims back into the torpedo tube, citing proprietary restrictions. But he did say the recovery is “completely autonomous.”

The TTLR includes a sleeve that fits inside the torpedo tube, called a SAFECAP, of Shock and Fire Enclosure, from which the IVER4 900 AUV swims out and is later recovered. Importantly, no structural modifications to the submarine are required.

“Whether it [the AUV] swims out with the nose out or backs out, it’s payload dependent on how it leaves,” Gear said. “It literally swims away, performs its mission, and then when it returns, it’s kind of a push of a button and it will swim back

into that SAFECAP of the torpedo enclosure. We've tested this on several different types of submarines, and I think we're the first also that have done this on both the United States Navy and the Royal Navy."

Gear said the "submarine has to operate in an envelope that's going to be compatible with the UUV. We can't discuss that here but it's very friendly to the mission. You put the SAFECAP in [the torpedo tube], the Iver goes in there with the guides, you lock it up and let it go, and it swims on out and does its thing autonomously. And when it's finished with its mission, it comes back, and with a command, a single command, it will come back into the sub."

The SAFECAP sleeve can be removed inside the submarine for the torpedo tube to be used for torpedoes or other payloads.

"The system delivers the first U.S. Navy submarine- and aviation-approved AUV lithium-ion battery technology, enabling longer-duration missions with hot-swap capability for continuous operations," L3Harris said in a March 26 release. "TTLR's interoperability across multiple submarine classes and allied platforms advances the Navy's manned-unmanned teaming vision and demonstrates AUKUS Pillar 2 collaboration."

Gear was not at liberty to discuss the value of the contract award or the quantity of the order. He did say a TTLR shipset includes two AUVs with a sustainment package that includes some payloads and spare parts. The TTLRs are being built at the company's Fall River, Massachusetts, facility.

Gear declined to say when deliveries of the TTLR will begin, only, "we've been looking forward to this working with the Navy for a little while and ready to go if and when the Navy was ready. And so, they're ready now. The pump is primed and we're starting to execute on that contract."