



## United States Navy

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# Comms at Speed and Depth Program Completes Critical Design Review

SAN DIEGO – The Submarine Integration Program Office (PMW 770) has successfully completed Critical Design Review for a key communications system that will give Navy submarines real-time, two-way communications without requiring platforms to proceed to periscope depth.

Currently, submarines must come to periscope depth to communicate with other ships, aircraft or shore facilities. This increases the submarine's detection vulnerability and may result in a delay in tactical communications. Communications at Speed and Depth, or CSD, is the near-term key to the Navy's envisioned undersea communications network. The system will allow strike group commanders to take full advantage of fast-attack and cruise missile submarine capabilities.

"Two-way connectivity allows submarines to be fully integrated into strike group operations and the Navy's networks to share situational awareness, plan collaboratively and execute missions with joint forces," said Brent Starr, PMW 770's CSD principal assistant program manager. "Successfully completing this review is the key indicator that we have designed a family of systems that is reliable, survivable and provides increased capability."

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***Brent Starr, Comms at Speed and Depth principle assistant program manager***

CSD Increment 1 consists of three types of two-way communications buoys and associated equipment that will be delivered for installation aboard submarines. Two fiber-optic tethered expendable communications buoy systems – for Iridium satellite and ultra high frequency satellite communications – will be launched from submarines. The third buoy is an untethered acoustic-to-radio-frequency gateway system that can be launched from submarines, aircraft or surface ships.

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Passing Critical Design Review is an indication of the program's increased probability of success and decreased technical risk. Initial test planning certification, known as the Test Readiness Review, will take place in August. Formal testing and test results certification, known as the System Verification Review, will take place in October. If success is met with this testing, the program can go into the Low Rate Initial Production phase of acquisition.

Starr explained there are many challenging technical issues concerning communications in an undersea environment. "Deploying a relatively fragile optical fiber to the surface while the submarine continues to maneuver, meeting the tight volume and weight constraints for RF sections and other systems in buoys, battery technology, underwater acoustic communications integration, and cryptographic integration over unconventional links are just some of the technical challenges," he said.

Submarines have historically operated with a long "communications leash": communications windows that vary from six hours to 24 hours or even weeks, often with "passive reception only," or no acknowledgements or outgoing messages. Carrier strike groups, using networked forces over a widely dispersed area, can fight optimally if the commander can see all of the available sensor data and provide near-instantaneous tasking to available units. Submarines, with their sensor's unique capabilities and their large inventory of anti-submarine weapons and cruise missiles, are a critical part of the commander's arsenal.

By establishing enhanced capability for submarines and commanders to pass time-sensitive information, the Navy will have further closed the information gap that traditionally distanced submarines from a strike group.

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