

Acquisition Update: C4ISR Program Upgrades Shipboard Internal Comms With ‘Leaky’ Cable

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The command, control, communications, computers, intelligence, surveillance and reconnaissance acquisition program installed prototype wireless interior communications systems on five legacy cutters this summer to improve coordination of firefighting, training exercises and other shipboard operations.

In response to feedback from cutter crews, Allen Balough, external/internal communications lead engineer for the C4ISR program, led a project to standardize and upgrade internal radio equipment on the Coast Guard’s older ships.

Cutters use hand-held two-way radios for internal communications, and before this project individual cutters bought and maintained their own equipment. As a result, radios differed on each cutter, with varying degrees of reliability and quality. About the only thing consistent across the fleet was that nearly all crews struggled to cope with radios that could not communicate clearly because of interference from the ship’s metal bulk.

These inconsistent communications hinder many shipboard operations, but the effect on emergency damage control teams is potentially the most serious. “The main issue is trying to relay a message from the front part of the ship to the aft, especially during drills,” said Chief Petty Officer Lamont Singleton, command fire marshal for Coast Guard Cutter Midgett. “We have to either jump messages from the forward part of the ship to someone amidships then aft or send a messenger with written messages to the intended personnel.”

Chief Petty Officer Gardy Viltus, the senior damage controlman aboard Coast Guard Cutter Sherman, agreed. “During drills it is difficult to maintain communication between the on-scene leader and the locker leader due to the distance,” he said. When fighting a fire, the time that it takes for a runner to relay a written message can be costly.

Knowing the severity of the problem and realizing that replacements for many legacy ships are either years away or not yet planned, the C4ISR team got busy. “We started researching options, and we found this stuff called ‘leaky coax cable’ that they use in mining operations,” Balough said. Standard coaxial or “coax” cable is normally used to transmit data over long distances and has a shield surrounding the data wires that prevents the signal from leaking out and losing strength along the length of the cable.

Leaky coax cable has regular gaps in the shielding that allow signals to flow in and out along the entire length of wiring. On a cutter, leaky coax cable provides a strong radio signal anywhere on the vessel by functioning as an antenna running the length of the ship.



The crew of the Coast Guard Cutter Alex Haley installed leaky coax cable this summer that improves hand-held internal radio coverage throughout the ship. The upgrade also includes headsets that give Coast Guard damage control teams hands-free communication during emergencies. U.S. Coast Guard photos.

In addition to the leaky coax cable, the C4ISR program purchased Icom America Inc. hand-held radios that will serve as the new standard. Each cutter will receive radios equal to half of its crew complement. The radios come with a hands-free headset that damage control teams can wear beneath protective fire gear. Singleton noted the benefits of the new radio headsets that “will allow for hands-free operation and eliminate the possibility of dropping or losing a radio during a casualty.”

Viltus is excited that Sherman will receive a reliable communications system. “This will vastly improve the effectiveness of our damage control drills while maintaining our day-to-day operation communication. In the damage control world a fast response helps minimize structural, equipment damage and personnel casualty,” he said.

The C4ISR program installed leaky coax cable in July on two Coast Guard cutters, the 282-foot Alex Haley and the 378-foot Munro. Three other cutters – the 210-foot Resolute and the 270-foot cutters Bear and Forward – received their upgrades in August. The five initial installations will serve as prototypes for their respective classes and as testing platforms for the operational evaluation of the leaky coax cable and new radios.

A total of 33 cutters will have leaky coax cable and new radios by September 2016. Installation takes two to four days and can involve 50 to 750 feet of cable, depending on the cutter. Because leaky coax cable loses signal strength over long distances, repeaters will be installed on the longer cutters to boost signal range and power.