High-Powered Lasers Boost Anti-Ship Cruise Missile Capability

NATIONAL HARBOR, Md. – The Navy is making considerable progress in the drive to field a high-energy laser system that can meet the demand for a directed energy system capable of defeating anti-ship cruise missiles called for in Chief of Naval Operations Adm. Michael Gilday's 2021 Navigation Plan, Christopher Lloyd, distinguished scientist for Laser Weapon Lethality at Naval Surface Warfare Center, Dahlgren Division, Dahlgren, Virginia, said Wednesday.

After at-sea trials of a 30-kilowatt laser aboard the USS Ponce in 2014-2017, a "150-kilowatt class" system was tested on the USS Portland, a new amphibious transport dock, including the destruction of an unmanned aerial vehicle target May 16, Lloyd said at a Navy League Sea-Air-Space expo briefing.

"We think we're getting to the point where we can actually start building these," Lloyd said. "No one thinks directed energy can solve all problems, but it's another tool we can use." A big advantage of a laser weapon, particularly in the key mission of killing anti-ship missiles, is expanding a surface combatant's magazine and replacing expensive missiles, "which puts us on the right side of the cost curve" against cheap enemy weapons, he said.

Although much of the attention on high-powered lasers is on their role as a weapon, Lloyd said Sailors involved in the tests on Ponce said it was a better sensor than other systems they had.

The laser "enables real-time combat identification and intent determination," according to a data sheet Lloyd presented. It

also provides speed of light delivery, precision engagement and graduated effect. “We want to be able to scale it up,” for different missions and effects, he added. “Bottom line, it addresses mission gaps we have.”

Although Lloyd would not say how powerful the laser tested on Portland was, he said “it looks like we have a glide slope for 300 kilowatts.”

Tests on Ponce and Portland used separate batteries to power the lasers, which requires gaps in firing to allow battery recharging. Dahlgren experts are working, along with others, to develop more powerful and higher capacity batteries to alleviate that problem, but also look to the greater integrated electrical power systems being developed in surface combatants as primary or backup power for the lasers, he said.

Dahlgren also is working on other high-energy systems, including a “dazzler” that can provide non-lethal crowd control, Lloyd said.