

# DARPA's compact high-power laser program completes key milestone

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Enemy surface-to-air threats to manned and unmanned aircraft have become increasingly sophisticated, creating a need for rapid and effective response to this growing category of threats. A potential solution for countering these threats is high-powered lasers, which can harness the speed and power of light to counter multiple threats. But these lasers need to be lighter and require less space than current state-of-

the-art for use on many of today's air assets. The goal of DARPA's High-Energy Liquid Laser Area Defense System (HELLADS) is to develop a 150 kilowatt (kW) laser weapon system that is ten times smaller and lighter than current lasers of similar power, enabling integration onto tactical aircraft to defend against and defeat ground threats.

DARPA recently completed laboratory testing of a fundamental building block for HELLADS, a single laser module that successfully demonstrated the ability to achieve high power and beam quality from a significantly lighter and smaller laser.

“Successful testing of the single laser module is a major accomplishment,” said Richard Bagnell, DARPA's HELLADS program manager. “Advances in diodes, cooling, lightweight electronics, pumps, optics, and metal structures have made shrinking the size and weight possible without losing laser effectiveness.”

The program now enters the final development phase where a second laser module will be built and combined with the first module to generate 150 kW of power. The goal is to have the 150 kW laser completed by the end of 2012.

Following the final development phase, plans call for the [laser](#) to be transported to White Sands Missile Range in the early-2013 timeframe for ground testing against rockets, mortars, surface-to-air missiles and to conduct simulated air-to-ground offensive missions.

DARPA is also in discussion with the Air Force about transitioning the technology to conduct an airborne demonstration following the ground testing phase.

Provided by DARPA

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