

LAYERED LASER DEFENSE (LLD)

Directed Energy
Laser Weapon Systems



Photo of completed LLD system.

Robust Directed Energy Risk Reduction For Multiple Military Applications

- Lockheed Martin self-funded the design, development of the Layered Laser Defense (LLD) system and began testing in 2020
- Successful kill-chain engagements against Counter-Cruise Missile (CM) and Counter-Unmanned Aerial Systems (UAS) missions
- LLD is the first tactical fiber-based laser weapon system equipped with adaptive optics to improve performance in non-ideal atmospheric conditions
- Accelerates warfighter integration with directed energy systems through demonstrated military utility and by supporting concept development and training
- Follow-on configurations may be optimized for customer requirements providing commonality for multi-platform and multi-user applications

Enhanced Capabilities:

- Modular, scalable laser weapon system (LWS) ready for integration with customer platforms – ground, sea and air
- Comprehensive weapon, engagement and fire control ready for integration with Command and Control networks for Counter-UAS / RAM / fast inshore attack craft (FIAC) / CM
- Variable high energy laser (HEL) power can be adjusted for shortest threat protection timelines
- Continuous firing capability using Rolls-Royce LibertyWorks (RRLW) power system to engage more types of targets with longer ranges than previous systems
- Rapid threat identification, confirmation and defeat enabled with advanced track and aimpoint management capabilities
- Beam control system assures performance against atmospheric challenges and optimizes laser beam's effectiveness and lethality

Emerging Advantages:

- Mature, high reliability LWS for extended deployments
- Compact and powerful; modular, scalable SWaP and output power
- Increased UAS swarm threat protection

Layered Laser Defense 100 kW-class Laser Weapon System Successfully Defeats Surrogate Cruise Missile

