



Directed Energy

Northrop Grumman develops high-energy laser solutions to defend our nation at sea, on land, and in the air. Our technology is protecting U.S. forces from a range of threats, such as unmanned aerial systems, rockets, artillery and mortars, fast attack boats and missiles.

For the last 50 years, we've advanced laser technology to defend against current and future threats. Our innovations include:

- Advanced targeting and tracking using machine learning
- Modularized architectures
- Scalable subsystems
- Low size, weight, power and cost
- Rugged components and materials
- Miniaturized systems with high-power output



Northrop Grumman's Laser Weapon Demonstrator Fielded on USS Portland

Northrop Grumman Corporation's Laser Weapon System Demonstrator (LWSD) has been installed on the USS Portland.

Developed in partnership with the Office of Naval Research, the 150-kilowatt class laser tracks targets and employs directed energy to stop and destroy hostile drones, small craft and other threats. The LWSD is the most powerful electric high-energy laser system ever deployed on a U.S. Navy ship.

The U.S. Navy has been testing the LWSD aboard the USS Portland since 2019, demonstrating its ability to track and destroy multiple unmanned targets. During those tests, the LWSD withstood challenging maritime conditions of wind, waves, rain and fog.

Counter UAS

Today's military requires an integrated, layered approach to counter the threat of unmanned aerial systems. Northrop Grumman's comprehensive directed energy defense solutions detect, track, target and destroy hostile targets before they can pose a threat.

Our C-UAS architecture starts with sensing and tracking, and includes a full complement of directed energy and kinetic effectors, coordinated by the Forward Area Air Defense Command and Control system, which is operational today.



Counter RAM

Defending forces against rockets, artillery and mortars requires highly-accurate, high-power solutions engineered for mobility and hardened for all environments. Northrop Grumman's directed energy solutions pack advanced beam control, precise targeting and tracking, and high output power in a small footprint that simplifies integration and reduces weight. Our technologies give our customers the agility, adaptability and extended range required for a wide range of missions.

Counter Missile

Systems designed to counter cruise, ballistic and hypersonic missiles need the right combination of mobility, accuracy, and flexibility. Northrop Grumman is developing high-energy laser systems with high power density, advanced beam control, and increased agility for targeting and tracking at extended ranges. Our technologies will be adaptable to a wide range of missions, protecting military bases, high value assets and critical infrastructure in all operational domains.



Offensive and Defensive Aircraft Systems

Our directed energy solutions are engineered for maximum performance, even in the harsh environments of subsonic and supersonic flight. We offer a range of aircraft-mounted offensive and defensive solutions to ensure air dominance and protect pilots from current and emerging threats. Our advanced technologies provide maximum tracking performance and increased accuracy through enhanced beam control, high power and reliability.