

Directed Energy Weapons Market By Technology (High Energy Laser, High Powered Microwave, Others), By Platform (Land, Airborne, Naval), By Product (Lethal, Non-lethal): Global Opportunity Analysis and Industry Forecast, 2023-2032

Market Report | 2023-09-01 | 230 pages | Allied Market Research

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Report description:

The integration of directed energy weapons (DEWs) with conventional weaponry transforms modern warfare and defense mechanisms. Directed energy weapons encompass cutting-edge technologies such as lasers and high-powered microwaves that focus energy onto a target, either causing direct damage or disrupting its operation. DEWs provide precision and accuracy during targeting. These weapons are able to swiftly and precisely engage distant targets without the necessity for projectiles to traverse through the air, thereby minimizing the risk of collateral damage and safeguarding non-combatants and civilian structures. As technology continues to advance, the incorporation of DEWs can be enhanced with novel targeting algorithms, advanced power sources, and improved beam control methods, ensuring the system's flexibility in the face of emerging threats. Such factors are expected to present lucrative opportunities for the growth of the directed energy weapons market during the forecast period. Land-based directed energy weapons (DEWs) are advanced weapon systems that utilize various forms of directed energy, such as lasers, microwaves, and particle beams, to engage and neutralize targets. These weapons are deployed and operated from terrestrial (land-based) platforms, making them an integral part of ground-based military operations.

The evolving threat landscape, including the proliferation of advanced missiles, drones, and other platforms, has driven the need for innovative and flexible defense solutions. Therefore, the directed energy weapons that use the land as a platform offer the potential to counter these emerging threats with precision and speed. Many countries are investing in the modernization of their armed forces, which includes exploring cutting-edge technologies such as DEWs. Land-based platforms can be integrated into broader military modernization strategies. In addition, collaborations between defense contractors, research institutions, and governments can accelerate the development and deployment of land-based DEWs.

The directed energy weapons that use air as a platform harness various form of directed energy, such as lasers, microwaves, and particle beams, and are deployed and operated from aerial platforms, such as aircraft and drones. These systems are mounted on aircraft and use lasers to engage and neutralize targets.

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Airborne laser weapon systems typically require powerful lasers to generate the necessary energy for effective engagement, making them suitable for larger aircraft platforms. These weapons emit high-powered microwave frequencies from aircraft to disrupt and damage enemy electronic systems, including communication, radar, and sensors. Microwaves can interfere with or disable electronic components, rendering the targeted systems inoperative. These systems deploy lasers to temporarily blind or disorient sensors, cameras, and targeting systems of enemy vehicles, aircraft, or missiles. Airborne DEWs provide the ability to rapidly engage and neutralize threats from different angles and altitudes. This flexibility is advantageous in dynamic and evolving conflict scenarios which increases the demand for such weapons.

Directed energy weapons (DEWs) that use naval platforms, such as ships and submarines, offer advanced capabilities for maritime defense and engagement. These weapons utilize various forms of directed energy, including lasers, microwaves, and particle beams, to engage and neutralize threats at sea.

Naval vessels can be equipped with shipborne lasers, known as high-energy lasers (HELs), to engage and neutralize targets at sea. These lasers emit focused beams of coherent light to disrupt or destroy drones, small boats, and other threats. Particle beam DEWs mounted on naval vessels generate and direct high-energy particle beams toward targets. The evolving maritime threat landscape, including the proliferation of advanced missiles, drones, and other naval threats, is driving the need for innovative and versatile defense solutions. For instance, the security challenges faced by naval vessels in U.S. expanded, with threats like drone swarms and anti-ship missiles becoming more prevalent. In response, in October 2022, the Navy made substantial progress in developing a cost-effective solution to deter and protect against aerial threats at sea. Lockheed Martin, the manufacturer, delivered the Navy's first high-energy laser integrated with an optical dazzler and surveillance system, known as HELIOS, during the third quarter of fiscal year 2022. Such developments are expected to drive the growth of the market during the forecast period.

The directed energy weapons market is segmented on the basis of technology, platform, product, and region. Based on technology, it is segmented into high energy laser, high power microwave, and others. On the basis of platform, it is classified into land, airborne, and navy. By product, it is categorized into lethal, and non-lethal. By region, the market is analyzed across North America, Europe, Asia-Pacific, and LAMEA.

Some major companies operating in the market include Northrop Grumman, BAE Systems, Rheinmetall AG, Thales Group, Leonardo S.p.A., MBDA, Boeing, RTX, QinetiQ, and Lockheed Martin Corporation.

Key Benefits For Stakeholders

- This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the directed energy weapons market analysis from 2022 to 2032 to identify the prevailing directed energy weapons market opportunities.
- The market research is offered along with information related to key drivers, restraints, and opportunities.
- Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.
- In-depth analysis of the directed energy weapons market segmentation assists to determine the prevailing market opportunities.
- Major countries in each region are mapped according to their revenue contribution to the global market.
- Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.
- The report includes the analysis of the regional as well as global directed energy weapons market trends, key players, market segments, application areas, and market growth strategies.

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- Additional company profiles with specific to client's interest
- Additional country or region analysis- market size and forecast
- Expanded list for Company Profiles
- SWOT Analysis

Key Market Segments

By Technology

- High Energy Laser
- High Powered Microwave
- Others

By Platform

- Land
- Airborne
- Naval

By Product

- Lethal
- Non-lethal

By Region

- North America
- U.S.
- Canada
- Mexico
- Europe
- UK
- Germany
- France
- Russia
- Rest of Europe
- Asia-Pacific
- China
- Japan
- India
- South Korea
- Rest of Asia-Pacific
- LAMEA
- Latin America
- Middle East
- Africa
- Key Market Players
- Rheinmetall AG
- MBDA
- RTX

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- QinetiQ
- BAE Systems
- Leonardo S.p.A.
- Boeing
- Northrop Grumman
- Thales Group
- Lockheed Martin Corporation

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