LiDAR Units for Autonomous Driving

ANMD-MRS16-156 · E-Mobility & Autonomous Transport Technologies

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US$

WHY THIS REPORT

LiDAR units provide high-resolution 3D perception for autonomous driving — measuring precise distances to build the detailed depth map cameras and radar alone cannot match. The technology is shifting from mechanical spinning units toward solid-state, MEMS, flash and FMCW designs that cut cost and improve automotive durability. This decision-grade study sizes the global market three ways — value, units shipped and equipped vehicles — across LiDAR architecture, range class, application and end-user, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability here is safety and systemic. LiDAR enables safer autonomy and supports cleaner shared mobility, while raising data-privacy, cost-equity and electronic-waste questions that responsible deployment must address.

Mapped Sustainable Development Goals:

SDG 7	SDG 9	SDG 11	SDG 12	SDG 13
Affordable Clean Energy	Industry & Innovation	Sustainable Cities	Responsible Consumption	Climate Action

Measurable sustainability outcomes assessed:

- Safer autonomy through robust 3D perception
- Falling cost curves widening access to advanced safety
- Cleaner, shared and automated mobility enablement
- Functional safety, data privacy and e-waste as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	**9** Report Parts	**7** Regions Covered	**40+** Country Markets
2025–32 Forecast Horizon	**4** Forward Scenarios	**25+** Companies Profiled	**5** SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Asia Pacific is the volume leader (China) on domestic makers and EV-OEM design-wins; North America drives autonomy (United States) on robotaxi and FMCW developers; Europe scales on German OEM L3 integration; other regions assessed on their own merits.

MARKET OVERVIEW

From costly prototype to mass-producible, design-won component.

Automotive LiDAR is moving from costly prototype to mass-producible, design-won component. Demand is driven by L3 autonomy, robotaxi deployment and solid-state cost reduction, against cost competition from camera-radar approaches and automotive-grade qualification burden. The market is read three ways — value, units shipped and equipped vehicles — and forecast under four scenarios, each region reported separately.

- **Asia Pacific leads volume** — China, where domestic LiDAR makers and EV-OEM design-wins drive the fastest production scale
- **North America drives autonomy** — United States, on robotaxi programmes and leading FMCW and solid-state developers
- **Europe scales on L3** — Germany, where OEM L3 deployments integrate automotive-grade LiDAR
- **Solid-state cost-down is the differentiator** — the move from mechanical to solid-state decides which players reach automotive scale and price targets

REGIONAL OUTLOOK

Across seven reporting regions, the report separates deployment leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Country Markets & Drivers
Asia Pacific	Volume leader	China, Japan, South Korea — domestic makers, EV design-wins
North America	Autonomy-driven	United States, Canada — robotaxi, FMCW / solid-state developers
Europe	L3 scale	Germany, France — OEM L3 integration
Middle East	Emerging	UAE, Saudi Arabia — autonomous-mobility pilots
Latin America	Frontier	Brazil — early ADAS / autonomy adoption
Africa	Frontier	South Africa — premium-vehicle and pilot adoption

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
• L3 autonomy & robotaxi deployment • Solid-state & MEMS cost reduction • EV-OEM design-wins (esp. China) • High-resolution 3D perception demand • Safety & redundancy requirements	• Cost vs camera-radar approaches • Automotive-grade durability & qualification • Competition from camera-only autonomy • Standardisation & integration complexity • Margin pressure & vendor shakeout

SEGMENTATION SNAPSHOT

By LiDAR Architecture	Mechanical spinning · solid-state / MEMS · flash · FMCW · hybrid scanning
By Range Class	Short-range · mid-range · long-range / high-resolution
By Application	Passenger · commercial · two-wheeler / micro-mobility
By End User	OEMs · fleet operators · charge-point operators · consumers
By Business Model	Hardware sales · software / subscription · services
By Scale	Consumer · fleet · OEM / industrial-scale

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

Part V — Company, Competition, Patent and Project Intelligence

Part VI — Sustainability, ESG, SDG, Climate and Natural-Capital Intelligence

Part VII — Supply Chain, Policy, Legal, Economics and Finance

Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

Part IX — Annexes, Directories and Reference Material

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans US and Israeli solid-state developers, dominant Chinese volume makers, and Tier-1 LiDAR providers, amid an active vendor shakeout. Deal activity — M&A, technology acquisition and platform expansion — signals a market consolidating around scalable, bankable, deployment-ready solutions.

Representative players profiled in the full report:

Luminar Technologies, Inc. · Hesai Group · Innoviz Technologies Ltd. · Ouster, Inc. · Valeo SA · and further profiled developers and Tier-1 providers

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a clear investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global automotive LiDAR market, and how fast will it grow to 2032?
- ? Which regions, architectures and range classes offer the strongest risk-adjusted opportunity?
- ? How does solid-state cost-down reshape design-win economics and the vendor field?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs, functional safety and data-privacy regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at tonnes and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, carbon-integrity and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways (value (US$), units shipped and equipped vehicles) so value, capacity and volume views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditions-based investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and venture / PE funds, vehicle OEMs and Tier-1 suppliers, robotaxi and autonomy developers, fleet operators, semiconductor and photonics firms, policymakers, lenders and ESG teams, plus strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

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Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at **www.anewmarketdynamics.com**. The full detailed table of contents will be sent directly to your registered company email address.