Aeva Introduces Atlas Ultra, Its Slimmest High-Resolution Long-Range 4D LiDAR Sensor at CES 2025

January 7, 2025

Aeva Atlas Ultra Enables Highway-Speed Automated Driving, with Up to 3x Resolution of Atlas, and an Ultra Slim Design Ideal for Seamless Integration in Consumer Vehicles

MOUNTAIN VIEW, Calif.--(BUSINESS WIRE)-- Aeva ® (NYSE: AEVA), a leader in next-generation sensing and perception systems, today announced Aeva Atlas™ Ultra, its newest 4D LiDAR sensor built to meet the performance demands of SAE Level 3 and 4 automated driving systems in passenger and commercial vehicles. To enable safe travel at highway speeds, Atlas Ultra provides up to three times the resolution of Atlas, and configurable field of views with up to 150 degrees of vision across the horizon. On-sensor perception software enables unique detection capabilities at a maximum detection range of up to 500 meters. A 35% slimmer design makes Atlas Ultra ideal for passenger cars in roofline and behind windshield integrations with minimal impact to vehicle styling and aerodynamics.



Aeva Atlas Ultra 4D LiDAR (Graphic: Business Wire)

“Atlas Ultra is our most powerful LiDAR sensor yet, designed to meet the performance needs of L3 and L4 highway driving,” said Mina Rezk, Co-Founder and CTO at Aeva. “Over the past few years, Aeva’s pioneering industrialization of 4D LiDAR coupled with our production programs and ongoing engagements with multiple top global automotive OEMs has converged on the highly versatile Atlas Ultra product. We believe Atlas Ultra, along with its critical on-sensor perception and localization offering, provides a competitive edge for passenger and commercial vehicle OEMs looking to introduce highway speed functionality without compromise.”

Delivering Industry-leading Performance

Aeva’s unique Frequency Modulated Continuous Wave (FMCW) 4D LiDAR technology detects velocity and position simultaneously to enable new levels of safety and automation. Using instant velocity data, automated driving systems can detect important objects faster, with higher confidence, and from greater distances.

Atlas Ultra delivers on critical requirements for highway-speed autonomous driving with a 250 meter detection range for low-reflectivity targets and a maximum detection range of up to 500 meters. Importantly, Atlas Ultra enables clear perception across a wide variety of everyday driving scenarios because it is immune to interference from direct sunlight, signals from other LiDAR sensors, and to blooming and ghosting around retroreflective objects like lane markers and street signs.

On-Sensor Perception Capabilities

Leveraging per point velocity information, Atlas Ultra provides perception and localization outputs directly from the sensor to enable unique capabilities, while helping to reduce compute costs. These capabilities include:

- Small Object in Roadway Detection : Detect small objects on the roadway and accurately discriminate retroreflective lane markers from non-drivable road hazards, such as a small brick or tire fragments, at distances of up to 150 meters.
- Dynamic Object Detection and Tracking : Detect and track the position and velocity of all dynamic objects with centimeter accuracy at up to twice the distance of conventional 3D time-of-flight LiDAR sensors.
- Late Reveal Dynamic Object Detection : Instantaneously detect dynamic objects that suddenly appear even while remaining partially obstructed, such as a pedestrian or animal emerging onto the road from behind a parked car or thick vegetation.
- Lane Lines & Drivable Region Detection : Detect lane lines and determine drivable regions.
- Aeva Ultra Resolution™: A real-time camera-like image that provides a high-density point cloud resolution.
- Advanced Vehicle Motion Estimation : Estimate vehicle motion in real-time with six degrees of freedom for accurate positioning and navigation without the need for additional inertial or positioning sensors.

Advanced AI Perception Capabilities

Additional advanced perception functions harness the latest AI-based detection, tracking and classification algorithms. These advanced perception algorithms utilize per point velocity information to deliver advantages for automated vehicle systems.

- Pedestrian & Vehicle Detection : Detect, classify and track static and dynamic objects including vulnerable road users (VRUs) such as pedestrians, bicyclists, and motorcyclists, as well as a large range of vehicle classifications including passenger cars, trucks, buses, emergency vehicles and more.
- Semantic Segmentation : Per-point segmentation of the entire point cloud classifies points as: pedestrians, vehicles, lane markings, drivable regions, road signs, infrastructure, vegetation, and more.

Powered by Aeva Custom Silicon

The advancements in Atlas Ultra are powered by custom silicon including the Aeva CoreVision™ Lidar-on-Chip module, and Aeva X1™ System-on-Chip processor.

- Aeva CoreVision : Designed to strict automotive standards, Aeva's fourth-generation LiDAR-on-Chip module incorporates all key LiDAR elements including transmitter, detector and an optical processing interface chip. Built on Aeva's proprietary silicon photonics technology, CoreVision replaces complex optical fiber components with silicon photonics, ensuring quality and enabling mass production at affordable costs.
- Aeva X1 : Aeva's powerful FMCW LiDAR System-on-Chip processor seamlessly integrates data acquisition, point cloud processing, scanning system and application software into a single mixed-signal processing chip. Designed for dependability with automotive-grade functional safety and cybersecurity built in.

Meets Automotive Requirements

Designed to meet challenging OEM requirements across passenger and commercial vehicle applications, Atlas Ultra meets automotive grade requirements for functional safety ISO 26262 ASIL-B (D), cybersecurity ISO 21434, and is IP69K compliant for robust dust and water protection, and strong shock and vibration endurance.

Demonstration and Availability

Aeva is demonstrating Atlas Ultra at CES 2025. First sample availability is targeted for late 2025 for select automotive OEMs and mobility customers. To learn more about Atlas Ultra visit: www.aeva.com/atlas-ultra.

Aeva at CES® 2025

Aeva's sensing and perception systems built on FMCW technology offer a wide variety of solutions for vehicle automation and industrial applications. Visit the Aeva booth to see Atlas Ultra and experience Aeva's family of sensing and perception products at booth #6900 in the LVCC West Hall. To learn more about Aeva at CES, visit www.aeva.com/ces.

About Aeva Technologies, Inc. (NYSE: AEVA)

Aeva's mission is to bring the next wave of perception to a broad range of applications from automated driving to industrial robotics, consumer electronics, consumer health, security and beyond. Aeva is transforming autonomy with its groundbreaking sensing and perception technology that integrates all key LiDAR components onto a silicon photonics chip in a compact module. Aeva 4D LiDAR sensors uniquely detect instant velocity in addition to 3D position, allowing autonomous devices like vehicles and robots to make more intelligent and safe decisions. For more information, visit www.aeva.com, or connect with us on X or LinkedIn.

Aeva, the Aeva logo, Aeva 4D LiDAR, Aeva Atlas, Aeries, Aeva Ultra Resolution, Aeva CoreVision, and Aeva X1 are trademarks/registered trademarks of Aeva, Inc. All rights reserved. Third-party trademarks are the property of their respective owners.

Forward looking statements

This press release contains certain forward-looking statements within the meaning of the federal securities laws. Forward-looking

statements generally are identified by the words “believe,” “project,” “expect,” “anticipate,” “estimate,” “intend,” “strategy,” “future,” “opportunity,” “plan,” “may,” “should,” “will,” “would,” “will be,” “will continue,” “will likely result,” and similar expressions. These forward-looking statements include, but are not limited to expectations about our product features, performance, potential applications and competitive advantages of our technology, and future product releases. Forward-looking statements are predictions, projections and other statements about future events that are based on current expectations and assumptions and, as a result, are subject to risks and uncertainties. Many factors could cause actual future events to differ materially from the forward-looking statements in this press release, including, but not limited to: (i) the fact that Aeva is an early stage company with a history of operating losses and may never achieve profitability, (ii) Aeva’s limited operating history, (iii) the ability to implement business plans, forecasts, and other expectations and to identify and realize additional opportunities, (iv) the ability to launch future products on the timeline Aeva expects, or at all, (v) the ability for Aeva to have its products selected for inclusion in OEM products, (vi) market acceptance of Aeva’s technology and the products into which it may be incorporated, (vii) the fact that the autonomous vehicle industry is an emerging market and may not achieve widespread commercial acceptance, (viii) unforeseen product or manufacturing defects, (ix) competition and innovation in our industry, (x) cybersecurity risks, and (xi) other material risks and other important factors that could affect our financial results. Please refer to our filings with the SEC, including our most recent Form 10-Q and Form 10-K. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and Aeva assumes no obligation and does not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. Aeva does not give any assurance that it will achieve its expectations.

Media:
Michael Oldenburg
press@aeva.ai

Investors:
Andrew Fung
investors@aeva.ai

Source: Aeva