

Tue, 14 November  
2023  
Weekly Newsletter



NEWSLETTER #829

## PixCell LED

Ultimate precision in perfect alignment

100+ individual cells with just 25 µm spacing, perfectly matrixed onto a single LED chip for intelligent headlamps



# Editorial

## High-Intensity, High-Density DVN Information

You'll find a great deal of information in this issue of your DVN newsletter. It was a really busy week for the DVN team with the Shanghai Workshop, the launch of the benchmark activity with A2Mac1, and [the launch of the Study](#). DVN members have been showing a lot of interest in the lighting benchmark activity, which demonstrate to us that we were correct to have taken that decision.

The Workshop was intense. Really, a day and half is no longer enough to have 10 automaker presentations; 10 from tier-1 suppliers, and around 15 from tier-2s. Add in the three panel discussions —design, ADB, and regulation this time—and there was a squeeze on time for networking and perusing expo booths. So, from now on DVN Workshops will run two full days for more and better value.

We received a lot of good feedback after the event from participants, especially about the panel discussions and the Slido app for interactive Q&A and survey participation. Feel free to [contact me](#) or reach out to the DVN team to share your thoughts so we may continue improving the content and technical organization of DVN events and productions. We will be back in Shanghai in one year's time, in November 2024; lighting is evolving so fast with all the new Chinese EV companies, and DVN is there for it, for you.

In this newsletter I have tried to summarize the Workshop, and you will be able to read much more detail about it in our next monthly report in December.

Also this week: information about the Chinese market, our Fudan University visit, minutes from GRE 89, and thoughts from GTB president. We're glad you're here!

Sincerely yours,

**Paul-Henri Matha**

*DVN Chief Operating Officer and Lighting General Editor*

A handwritten signature in blue ink, appearing to read 'pammum'.

# In Depth Lighting Technology

## Shanghai DVN Workshop: Key Points

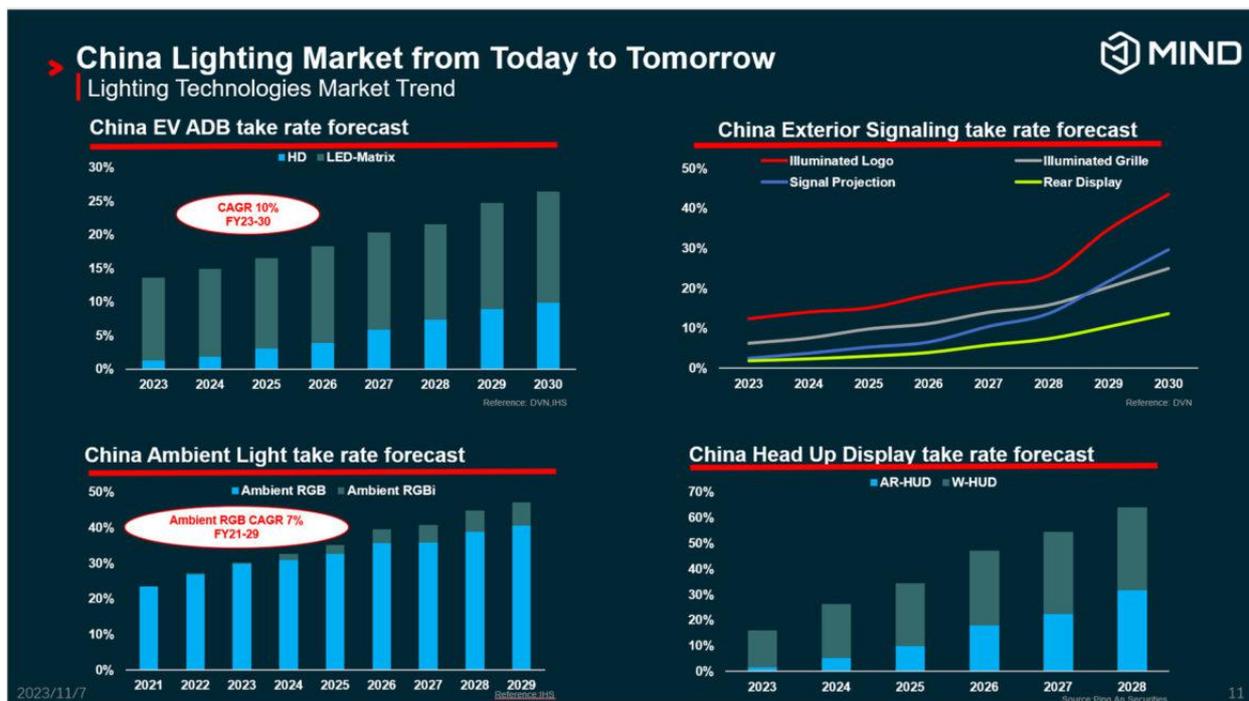


Our 1.5-day Shanghai Workshop at the Marriott Parkview Hotel brought together around 350 participants. It was a sparkling event with an enormous amount of information, so it's not easy to do a quick summary—we're working on next month's deeper report on it—but for now, here are the main takeaways:

### Trends

Hossein Nafari, of Great Wall Motors-MIND, gave the first keynote speech with an overview of China's lighting market:

- ADB equipment rate will grow.
- Illuminated grilles, grilleboards, and logos and signal projections and displays will grow.
- Ambient and interior lighting will grow at a slower rate.



There was great interest during the Workshop about MLA technology, with really interesting presentations and expo booths from three companies focusing on it.

## Automaker and tier-1 presentations

The trend is still toward slim lights, displays, and communication, with a new focus on power consumption. The new category A2 variable-intensity position lamp—similar to a DRL by day but with lower intensity—was mentioned often as a new feature that will improve EV efficiency. All EV-involved presenters mentioned power consumption, alongside physical efficiency (e.g., drag).

## Regulations

GRE's latest decisions were presented. CATARC, SMVIC, and Xingyu presented the Draft GB regulations on LSD (lighting and signalling devices) and RID (road illumination devices), with topics including:

- New low beam classes that will replace AFS, with new photometric grids
- New road projection
- New signalling projection
- Minimum stop light surface 15 cm<sup>2</sup>
- Variable front position lamp
- Lit logo

A great exchange was initiated, but the Q&A session was too short. Don't fret; we will strive to answer in the monthly report all the audience questions, with help from the opposite speakers.

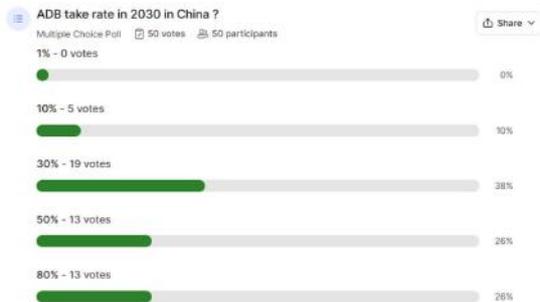
The Slido app once again enabled real-time audience feedback about evolution in the new text proposal. The focus was on projections and the minimum lit area of the stop light function.



Word from authorities is that the release of the new regulation is postponed and entry into force should be around December 2024 or January 2025.

## ADB

CATARC presented their roadmap for integration of ADB in the 2024 C-NCAP ratings, and integration of surrounding ambient light into the ADB evaluation test in 2027. Discussion was focussed on ADB interest, supported by a real-time Slido survey. 86 per cent of the audience said ADB equipment rates will increase drastically in China to 30 per cent or more in 2030, of which 30 per cent will be implemented in HD technology.



## Panel discussion: design



A lighting designer from Polestar was a panellist after his keynote, along with an IM Motors lighting designer and one from Mind. It was a really interesting discussion about trends in China compared to Europe. It was the first time for DVN to organize this design panel, and we are confident that we will do it again. At 4:30pm on the second day, the room was still fully crowded!

The lighting designers explained the importance of reducing drag and power consumption for EV range retention. Clearly, the lighting community is involved and there must be strong collaboration among design, automaker and setmaker engineers, and LED and ECU makers.

# Lighting News

## Süss to Sell MicroOptics Division

LIGHTING NEWS



Süss MicroTec signed an agreement last week for the sale of their Swiss subsidiary Süss MicroOptics to Focuslight Investment Management, a subsidiary of Shanghai-based Focuslight Technologies.

The €75m transaction is expected to be complete in the first quarter of 2024, subject to pending approvals. It will include the acquisition of all shares of Süss MicroOptics and the redemption of financial debt.

Focuslight, with around 800 employees, develop and make diode laser components as well as laser optics. Focuslight and Süss MicroOptics have complementary product portfolios and serve customers in the automotive and medical technology sectors.

With the acquisition of photonics specialist LIMO from Dortmund (Germany), Focuslight have already gained experience in the Western European markets. Süss MicroTec CEO Burkhardt Frick says, "Close cooperation in the areas of R&D, production and sales creates synergies in operating activities and forms the ideal foundation for further and accelerated growth".

In the 2022 fiscal year, the MicroOptics division contributed €39m worth of sales. For the full-year forecast for 2023, adjusted on 25 October 2023 with MicroOptics included, gives a sales forecast of €300m; expected gross profit margin of 35 per cent, and an EBIT margin of 7 to 11 per cent.

# GRE 89th Session: Big Upgrades to UN R48

## LIGHTING NEWS



Davide Pugliese · Valter Genone · Bart Terburg

From 24 to 27 October, the 89<sup>th</sup> Session of GRE took place at the Palais des Nations in Geneva.

It was a highly productive session, adopting several improvements to UN Regulations on lighting. Surely the most important achievement was the adoption, after long preparatory work, of the 9<sup>th</sup> series of amendments to UN Regulation N° 48 (Installation of Lighting and Light Signalling Devices).

This extensive new series of amendments includes three main proposals from GRE-IWG SLR and GRE-SIG, as well as many other changes and improvements presented by GTB, OICA, and CLCCR.

The main items covered by this series of amendments are:

- improvement of headlamp levelling requirements, including the mandatory fitting of an automatic levelling system and narrowed limits of beam aim, more correlated with the installation height;
- introduction of 'devices transition' provisions, forbidding the use of old-fashioned lamps by referring only to the most recent requirements in UN Regulations N° 148, 149, and 150;
- introduction of allowance for an answer-back signal for the vehicle in park condition, performed by lamps already fitted on the vehicle to provide other signalling functions, having a maximum luminous intensity lower than 700 cd at

or above H-H. In addition, the requirements for exterior courtesy lamps have been amended to allow them to adapt the shape of their apparent surface or their light intensity, also in relation to the position of the vehicle users.

The final proposal for the 09 series of amendments will be presented by GRE at the March 2024 session of WP29. Absent any opposition (none is expected) the new series of amendments should be optionally applicable from October-November 2024; their mandatory application will start on 1 September 2027 for new type approvals in vehicle categories M, N1, O1, and O2. Three years after that, starting on 1 September 2030, Contracting Parties can mandate the application of R48/amendment 09 for new vehicle registrations. For vehicle categories N2, N3, O3, and O4, these mandatory application dates are postponed by 1 year—1 September 2028 and 1 September 2031, respectively.

Obviously, the new headlamp levelling requirements are stricter, and so the cost of the levelling system will increase. However, considering the pressure from the public on administrations for the reduction of glare from vehicle headlamps—as evidenced by correspondence received by many Contracting Parties present at GRE—improved requirements on this matter were necessary. And considering that the discussion on these amendments has gone on for more than 20 years, the stringency upgrade cannot be called premature!

The 'devices transition' provisions are quite well justified by the fast evolution of lighting technology and technique, while the allowance for the answer-back signal is a first step to finally regulate, in a uniform way, the use of existing lamps for additional functions on vehicles in park conditions, allowing for less critical acceptance of these functions by all the Contracting Parties. Next steps in mind, probably for the 10<sup>th</sup> series of amendments, are allowance for the installation of charge-indicator lamps and for the activation, in check mode, of any lamp installed.

# Gen-3 ams OSRAM Oslon is Brightest, Most Flexible Yet

## LIGHTING NEWS



ams OSRAM have just launched the latest generation of their Oslon Submount PL LED family, offering higher brightness and more design flexibility to makers of automotive forward lighting modules and assemblies.

The third-generation Oslon Submount PLs are around 9 per cent brighter than the second generation, according to ams OSRAM. This gives manufacturers the potential to reduce the system cost and power consumption of new headlamp designs. With the introduction of the new gen-3 products, the Oslon Submount PL family is expected to maintain its strong market position in standard static headlamps for entry-level vehicles and EVs.

The gen-3 product family includes two options for the LEA (light emitting area) with a single board layout; the 1,030- $\mu\text{m}^2$  LEA provides balance between luminance and efficacy, while the 1,150- $\mu\text{m}^2$  option is optimized for efficacy.

Ams OSRAM's automotive forward lighting product marketing manager Philipp Puchinger says the new LEDs are "equally applicable to static headlamp designs, in which the light source is mounted directly on the heatsink, eliminating the need for a high-performance PCB, and to standard modules, in which the LED is mounted on an open-frame housing. In both cases, the introduction of the latest generation of Oslon Submount PL LEDs gives automotive manufacturers a roadmap to higher efficacy and lower system costs".

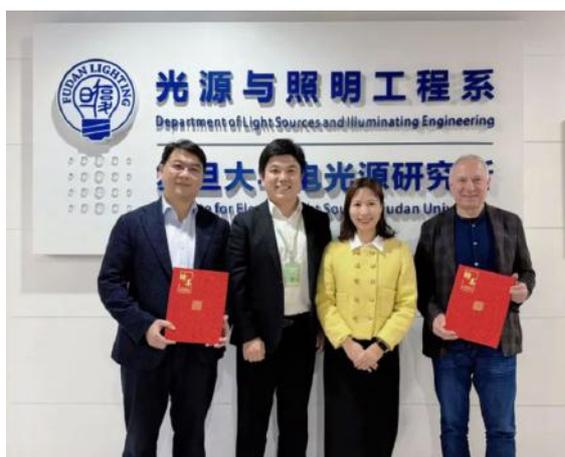
The new LEDs also offer high thermal stability and a uniform beam pattern characterized by homogeneous colour-over-angle radiation. The Oslon Submount PL Gen3 products are available for sampling now, with the 1,030- $\mu\text{m}^2$  LEA.

# Qu Liang's PhD Student steering group established

## LIGHTING NEWS



November 9<sup>th</sup>, Dr. Wolfgang Huhn, DVN Senior advisor; Paul-Henri Matha, DVN COO; Dr. Zhou Wei, SAIC Volkswagen MEB Model Line Management Executive Director; and Ms Chen Qiong Audi China Lighting Development Senior Manager were invited by Pr. Yandan Lin from the Department of Light Source and Lighting Engineering of Fudan University to attend the inaugural meeting of the PhD student mentoring group of Mr. Qu Liang, a 2023 PhD student, at the Institute of Electric Light Sources, Fudan University.



The meeting was chaired by Professor Yandan Lin, and attended by Mr. Xie Fengxian, Deputy Dean of the Department of Light Source and Lighting Engineering of Fudan University, Christopher Weirich, Ph.D. student of Fudan University, and Mr. Le Gang, General Manager of Shanghai Fuzhan Intelligent Technology.

During the meeting, participants also discussed the latest automotive lighting technology, and how to promote and develop the latest lighting technology

# Hella Growth Outpaces Market in First Nine of '23

## LIGHTING NEWS



Hella increased their groupwide sales by 12.6 per cent to €5.9bn in the period 1 January to 30 September 2023. This—once again—significantly exceeded global vehicle production, which increased by 9 per cent over the same period. Operating income grew by around 68 per cent to €363m, achieving 6 per cent.

Hella CEO Michel Favre says, "In a persistently challenging, volatile industry environment, we have once again proven to be extremely resilient and recorded very successful financial results. In addition to a significant sales growth, which clearly shows the high market demand for our product solutions, we have also improved considerably in terms of profitability. Here we are benefiting from higher business volumes, synergy effects from the cooperation with Forvia and the passing on of still-high costs for materials, energy and logistics to our customers".

In particular: Lighting business group sales increased by 16 per cent to €2.9bn, on higher production volumes in all regions and particularly increased demand for the latest lighting technologies from manufacturers of electric vehicles. The Electronics business group achieved a sales increase of 10 per cent to €2.5bn, and the Lifecycle Solutions business group also improved by 10 per cent to € 0.8bn.

For the full fiscal year 2023 (1 January to 31 December 2023), Hella expect to generate currency and portfolio-adjusted sales of around €8.0bn to €8.5bn. The operating income margin is forecast to be around 5.5 to 7.0 per cent. Both the adjusted sales and the operating income margin are expected to be around the midpoint of the respective forecast range. In relation to sales, a net cash flow of approximately 2per cent is still expected. This is based on a projected production volume of around 86 million vehicles in 2023.

Favre says, "We remain on track to achieve our goals in a successful fiscal year. We expect record sales and significantly improved profitability. This speaks for our good strategic alignment along key future fields such as electrification and energy management as well as safe and automated driving. In addition, we continue to manage our cost structures very efficiently".

# Christophe Marceau is New Chief of HBPO Modules

LIGHTING NEWS



Christophe Marceau has been appointed President & CEO of the Modules division and joins the Management Committee of Plastic Omnium. He succeeds Martin Schüller in this position, who is leaving the company. Marceau previously was Managing Director of the Western Europe Business Unit of the Intelligent Exterior Systems division of Plastic Omnium.

The Modules division comes from the HBPO joint venture—created in 2004 between Plastic Omnium, Hella, and Behr—which Plastic Omnium bought entirely in 2022. HBPO supply complex modules (front ends, cockpits, etc) to automakers. The division's headquarters is in Lippstadt.



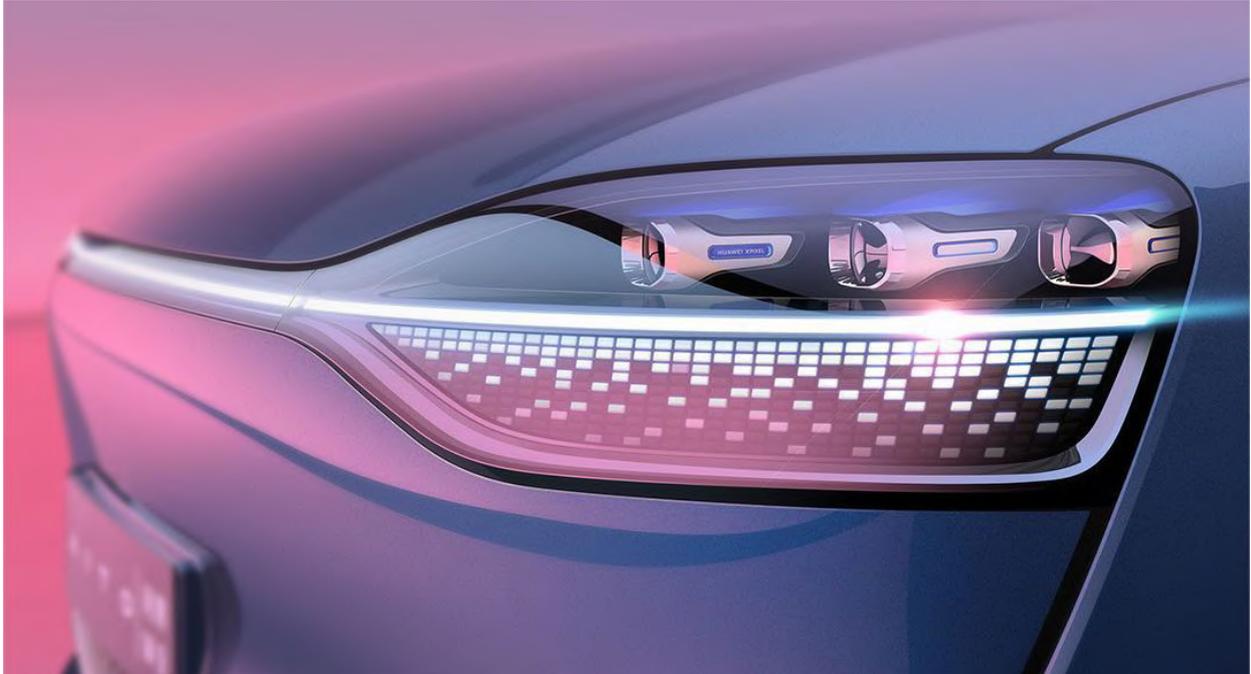
Marceau is an engineer. He graduated from the Strasbourg School of High Polymer Application and joined Plastic Omnium in 1992 where he held various operational positions in both the technical management and purchasing management of the Intelligent division. In 2007, he became Purchasing Director of Exterior Systems. In 2014, he was appointed Director of Sales and Programs for the Western Europe Business Unit of the IES division before taking on the role of General Manager of that unit in 2020. He says, "It's really exciting to take the leadership of this new business."

From development to assembly and delivery of complex modules for just-in-sequence production, it requires high technical expertise from the teams located across 32 plants worldwide and headquartered in Germany in Lippstadt".

The division develops modules that are ever more integrated: front-end modules (in which HBPO are N° 1, equipping one out of five vehicles worldwide), cockpits, centre consoles, and more.

# Latest China Model Launches

## LIGHTING NEWS



## BYD Yangwang U8 Luxury Version



The headlamps use 'interstellar' as the design theme, with dense diamond light particles.

The car is equipped with a 70-inch ARHUD, a 12.8-inch OLED curved screen, and a 23.6-inch main and co-pilot screen.

## Two Chery Concept Cars



Fengyun A9



Fengyun T11

The new Fengyun A9 and T11 have starlight dot matrix front grilleboards, and matrix light sources have been added to the headlights. The front face of each car bears a fashionable closed design with a full-width light bar, and the LED light system looks

exquisite. The 12 DRL light sources at the bottom are arranged on both sides of the logo, with a white light effect.

## Changan Deepal S7i and SL03i



Both cars are consistent current design trends. The front face of the S7i is very young and futuristic, with the latest popular elements, such as 696-LED headlamps. It is said to 'support scene-based sound and dynamic effects of light language'.

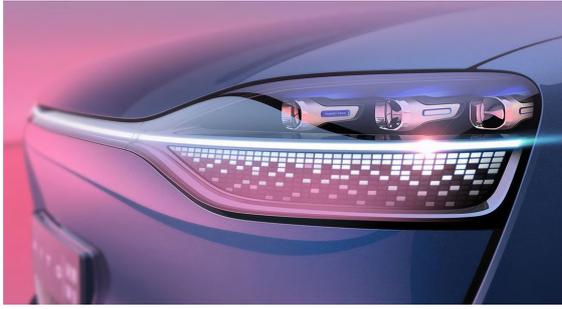
## Avatr 12



The Avatr 12 is the first model equipped with Huawei Hongmeng Cockpit 4.0. The overall design of the front face continues the design of the Avatr 11 and bears the unique Halo screen composed of 10,500 light beads; it can realize interaction with people and vehicles. The headlights consist of two slender rectangular lights that present an overall silhouette in an E-shape. The taillights do not have a full-width light bar design, but two slender shapes that echo the design of the front face.



## Aito M9



The front face of the Aito M9 is said to be inspired by the design of 'Kunpeng Spreading Wings'. The car is equipped with Huawei's adaptive high and low beam system technology, with dual lamps and 2.6 million high-pixel modules. In addition, a light carpet can be projected. Equipped with ISD interactive headlights, it can interact with pedestrians and project graphic symbols to give way to pedestrians during the movement of vehicles. DLP headlights project a variety of patterns, which also expanding and enhancing the driver's vision.

# Driver Assistance News

## AEye Lidar Maximizes Performance, Design

DRIVER ASSISTANCE NEWS



AEye have announced their ultra-compact, high-performance reference design for automotive lidar, the 4Sight Flex. It delivers unparalleled performance; it is highly compact and energy-efficient, and it breaks new low-cost barriers.

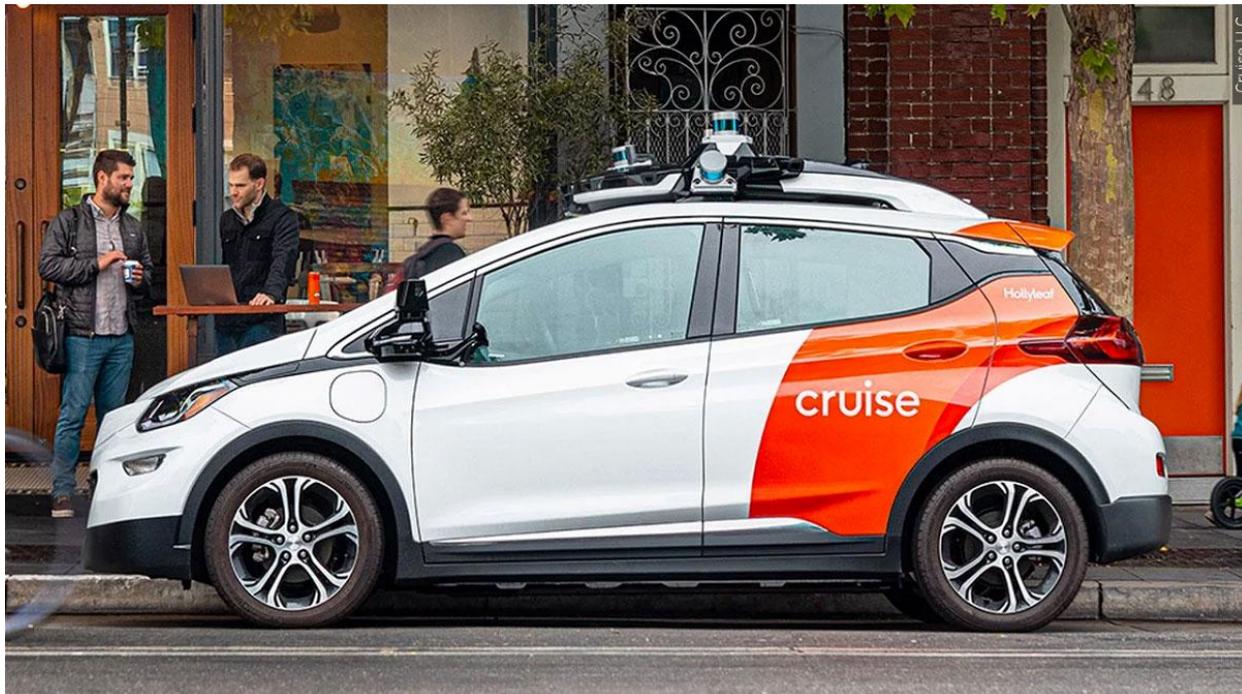
CEO Matt Fisch says, "We believe that performance and design both matter and that both are important to driving lidar adoption with OEMs. Our customers and partners want options that go beyond yesterday's large antennas and today's sensors protruding outside the vehicle. With 4Sight Flex, AEye is delivering what the market demands: exceptional lidar performance together with the option for a more integrated design in the OEMs' location of choice".

The 4Sight Flex delivers superior behind-the-windshield performance and is believed to be the only high-performance 1,550-nm lidar capable of in-cabin integration. It boasts a  $120^{\circ}\text{H} \times 30^{\circ}\text{V}$  field of view, with ultrahigh resolution of up to  $0.05^{\circ} \times 0.05^{\circ}$  and long-range detection of up to 275 metres at 10-per-cent reflectivity, all at approximately half the size and with down to 40 per cent less power consumption compared to AEye's first-generation design.

The 4Sight Flex also offers what AEye believe to be the lowest-technical-risk solution at one of the lowest volume costs in the industry. As production scales up for automotive volumes, the company anticipate an additional 10 to 20 per cent component cost reduction compared to the current generation, making this design very cost-competitive.

# California Halts GM Cruise Robotaxis

## DRIVER ASSISTANCE NEWS



After two crashes with pedestrians—and numerous others not directly involving a collision between a Cruise car and a person—GM's Cruise robotaxi operation is no longer allowed to send any cars onto the streets of San Francisco without a human safety driver. The California Transportation Authority suspended the GM subsidiary's autonomous-driving permit indefinitely. Cruise tests with safety drivers are still allowed, and vehicles from competitor Waymo may continue to go driverless in San Francisco.

In the crash that motivated California's action, a pedestrian was initially hit by a human-driven vehicle and thrown in front of the Cruise self-driving car, which braked immediately, but still hit the woman. The robot cab stopped, but then—sensing no obstacle in front of it and oblivious to the woman trapped under it—started forward. The woman stuck under the car was dragged along for about six meters.

The driverless-permit suspension is a major setback for Cruise. The company, who have been financed with billions over the years, have major expansion plans up to their launch in Tokyo in 2026, and want to switch to a robot cab without any steering wheel or pedals at all. Current Cruise cars are still converted Chevy Bolts.

Overall, autonomous vehicles are taking much longer to reach market maturity than was predicted just a few years ago. While the technology has long worked under simple conditions, some insiders now question whether the software can be trained for all unexpected situations, starting with weather hazards.

NHTSA also have launched an investigation of Cruise.

# General News

## Ampere: Renault Group's New EV & Software Operation

### GENERAL NEWS



Renault Group CEO Luca de Meo waxed rhapsodic about the launch of the company's new EV and software operation, called Ampere: "Today is a day that matters for the European car industry. One that I will remember forever. Alongside with my colleagues of the Ampere leadership team and its over 11,000 employees, I had the honour to kick off the operations" of Ampere.

"We started from a simple idea. Making electric vehicles and software is a different sport than our traditional combustion engine business. Everything is different: from supply chain management, down to development cycles, design, production, cash allocation or even customer interactions. To win medals in this new sport, you thus need a different athlete, 100 per cent focused on this discipline. That's what Ampere is about. We are the first in Europe to come with this unique combination of a start-up leveraging on the know-how and track record of Renault Group, with sustainability and innovation at the core of the system.

"All of it, only one year after we announced it and in the wake of the impressive turnaround of our group."

# Renault and Nissan: A New Chapter of the Alliance

## GENERAL NEWS



CEOs Makoto Uchida, Luca de Meo, Takao Kato

The New alliance agreement between Renault Group and Nissan came into force last week, replacing the former agreements governing the Alliance.

As a result, Renault Group and Nissan now have a cross-shareholding of 15 per cent with lock-up and standstill obligations. Each of the partners is able to exercise the 15-per-cent voting rights attached to their own shareholding. The voting rights of Renault Group and Nissan are capped at 15 per cent of the exercisable voting rights, and both companies are able to freely exercise their voting rights within the limit.

Renault have transferred 28.4 per cent (out of 43.4 per cent) of Nissan shares into a French trust, where the entrusted shares will be voted neutrally, subject to limited exceptions. The Renault Group continue to fully benefit from the economic rights (dividends and proceeds of share sales) from the entrusted Nissan shares until they are sold. From now, Renault Group may, if they wish, instruct the trustee to sell the entrusted Nissan shares.

This next chapter of the Alliance will build on the foundations of the longstanding partnership and will maximize value creation for each Alliance member and lays the foundations for a new balanced, fair, and effective governance. The Alliance will continue to identify key projects across markets that aim to deliver win-win, large-scale and actionable benefits.

Nissan President and CEO Makoto Uchida says, "Based on this equal footing, Nissan will continue to harness our core competencies and be more agile to explore further growth opportunities that support our business strategy, especially through initiatives aligned to Nissan's Ambition 2030 and electrification strategy".

Renault Group CEO Luca de Meo says, "We are now effectively entering this new era of the Alliance with a pragmatic and business-oriented approach. Our joint projects in Europe, Latin America and India will strengthen our partnership and generate hundreds of millions of euros in value for each partner while being mutually beneficial in the field of innovation".

# Volvo First Van EM 90

## GENERAL NEWS



Volvo is introducing in China this week their first luxury van with the best range of any model in their fast-growing electric vehicle lineup.

The boxy-looking Scandinavian living room on wheels will be aimed at China and Asia, where upscale vans are gaining in popularity, with no current plans to sell the EM90 in Europe and the U.S. because minivans have not been strong sellers in either market for years.

With 200kW power, the Volvo EM90 will have a range of 738km according to the country's CLTC driving cycle tests, corresponding to around 660km with WLPT cycle tests, topping the estimated figure of 600 km from Volvo's flagship electric SUV, the EX90. (Source Autonews Europe).

Volvo is keeping the Thor symbol both for the front and the rear.

