Tue, 4 February 2025
Weekly Newsletter

DVN Lighting

NEWSLETTER #890

Editorial

DVN Award Voting Time Is Nigh!

2025 certainly hit the ground running; a lot of things have happened all over the world. CES (**we just published the report this week**), Bharat Mobility Global Expo in India (main takeaways in the newsletter and more details in **a dedicated report**), Automotive World in Japan (summary next week). We are now focusing on our first DVN event in 2025. This week you'll see my talks with Sony and Nichia, who will both be participating. Next week's focus will be on sustainability, and we'll bring you interviews with Valeo, ams Osram, and Volvo Trucks—who will be part of the sustainability session in Munich.

It is time to vote for the DVN Awards. There are six categories this year; find descriptions and candidates in this week's in-depth piece. Please **cast your vote** by the deadline, which is next Tuesday (11th February).

The award ceremony will be held at the DVN event in Munich on the evening of 19th February, just before the cocktail hour. More than 300 people are already registered, and we estimate 500 participants. If you haven't already done so, **come sign up** to reserve your spot! I'm looking forward to seeing you there.

Paul-Henri Matha
DVN Chief Executive Officer and Lighting General Editor

In Depth Lighting Technology

DVN Awards '25: Cast Your Votes Now!

Online voting is open for this year's DVN Awards, to be bestowed during the DVN Lighting event in Munich, the evening of 19th February.

There are six categories to recognize the great work done by the whole lighting community of designers and engineers at automakers and tier-1 and -2 suppliers. Voting is open for one week, starting today—4th February—and closing next Tuesday the 11th.

Candidates for Best Front Lamp

Opel Grandland

Galaxy E8

Audi A6

Renault R4

Bentley Continental GT

Zeekr Mix

DS № 8

Hyundai Ioniq 9

Candidates for Best Rear Lamp

Scout Terra

BYD Denza Z9

Aston Martin Vanquish

Xiaomi SU7

Dodge Charger

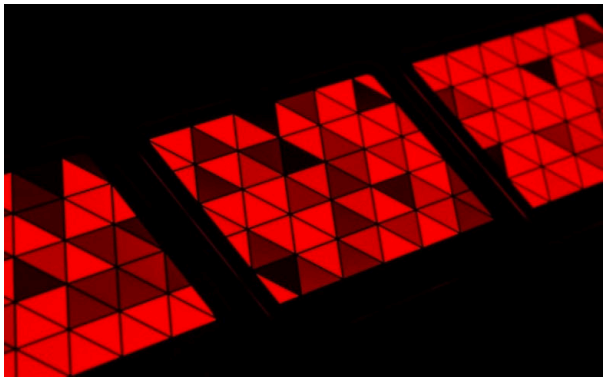
Kia EV3

Audi A6 e-tron

Nissan Qashqai

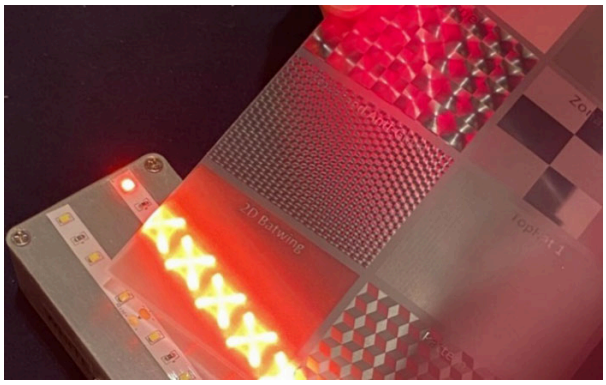
Candidates for Best Technology

Zeiss Holographic films

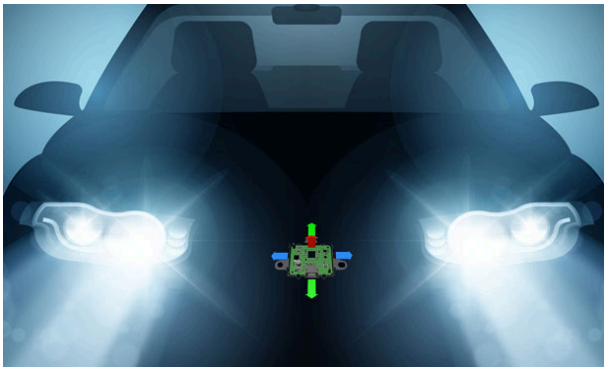


Oledworks digital OLED 2.0

Elmos multichannel LED IC



Brightview Technologies MLA film



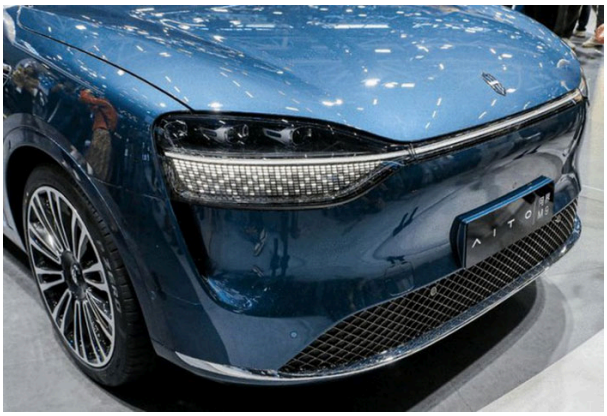
AML LUMEMS automatic levelling system

ams OSRAM Aliyos

MARADIN MEMS LASER PROJECTOR UNIT

SONY DADC PLASTIC MLA

Candidates for Best Lighting UX



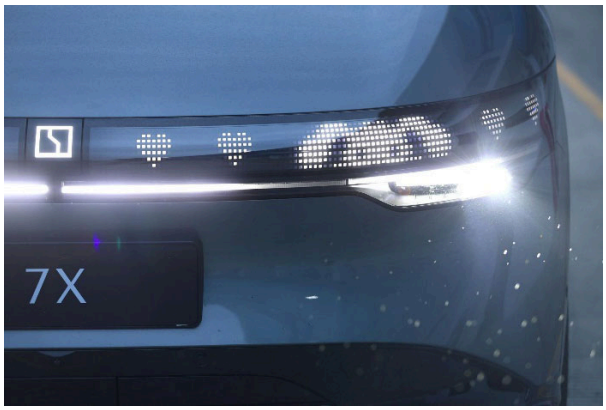
Huawei Aito M9

Rivian R1T

Mahindra Be6e

Deepal S05

Lynk & Co Z10



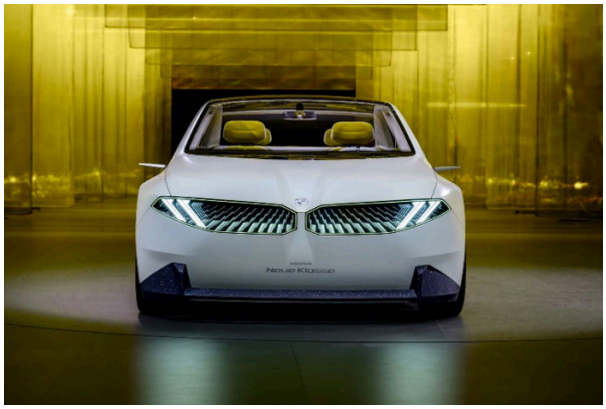
Zeekr 7X

Candidates for Best Concept Car Lighting

DS SM

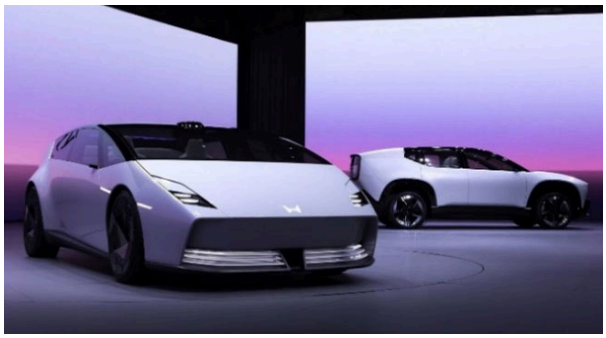
Jaguar Type 00

Alpine Alpenglow



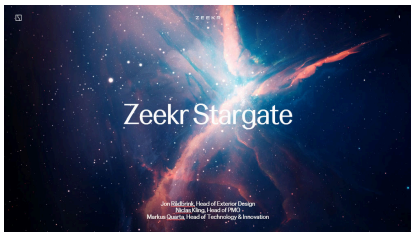
BMW Neue Klasse

Cadillac Opulent Velocity

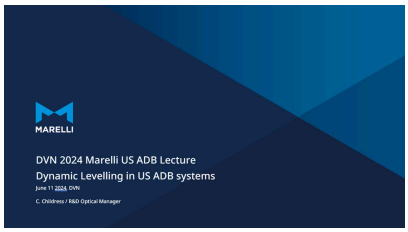


Honda Type 0 Saloon

Candidates: Best DVN Lecture of 2024



[Zeekr @ Munich]



[Marelli @ Detroit]

[Scout Motors @ Detroit]

[Fiem @ Pune]

[Lynk & Co @ Shanghai]

Lighting News

DVN Field Trip: Sony DADC Austria

LIGHTING NEWS

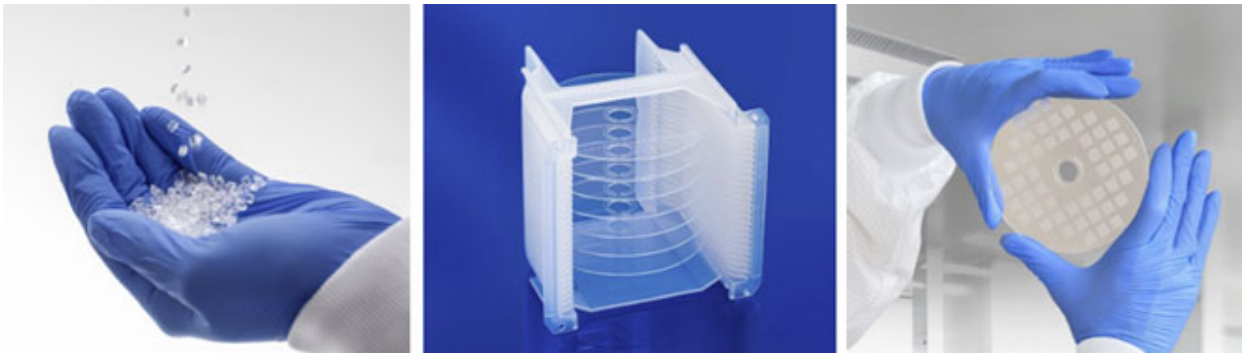
By Paul-Henri Matha

Sony, the famous Japanese company with over 110,000 employees and global revenue around €80bn, actually comprises around 100 companies. One of them is Sony DADC, who joined DVN in 2024. Shortly ago, Wolfgang Huhn and I had the great pleasure of visiting.

Headquartered in Thalgau, Austria and established in 1983 as a compact disc plant, the company now operate in three locations: Austria, Czechia, and the USA. With around 900 employees and a revenue of €200m, Sony DADC's core business focuses on optical discs, including CDs, DVDs, regular and UHD Blu-Ray discs, and PlayStation games. Their production facilities handle all global Sony disc manufacturing except for Japan. While the optical disc business is declining from its peak (in the 2000s with more than 2 billion units per year), the plant's rich history is celebrated, with a Beatles guitar prominently displayed in the main hall—a nod to the music legacy tied to the site. The plant's location, just 10 km from Salzburg, Mozart's city, adds to its unique appeal.

For the past decade, Sony DADC have been exploring new business opportunities to leverage their extensive expertise and infrastructure. While their optical disc production processes focus on polycarbonate layers with high precision, the potential to repurpose these capabilities is exciting—particularly in producing optical components like microlens arrays (MLA).

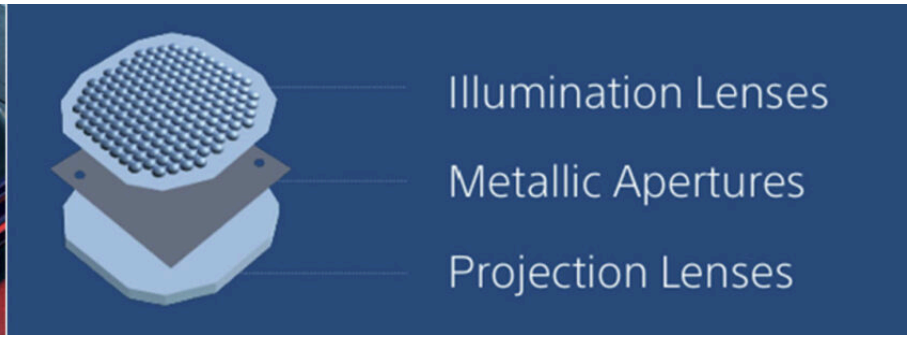
Key capabilities derived from optical disc production



- Nanometre-precision optical design
- Master creation using advanced laser technology (mirroring design, ~1-hour duration)
- Integration of the master into injection tools to produce wafer plates (avoiding the need for complex, long-lead-time injection moulds)
- UV curing
- Multilayer coatings, such as metallic layers to create patterns, or the three-layer coating used for PlayStation discs
- Wafer cutting to transition from a disc shape to final optical lens production—a new process to be implemented for this application

(note: the 2.7-second cycle time mentioned in this article is for optical disc production. Adaptations for optical components may involve additional processing steps and different overall production times)

Sony DADC are initially targeting lighting applications such as signalling and road projection, but the potential extends far beyond MLA technology. Optical lenses, including microöptics for homogeneous design signatures, diffractive optical designs for direct imaging modules, and freeform optical designs, could also be explored—all with the promise of efficient production cycles and high scalability.



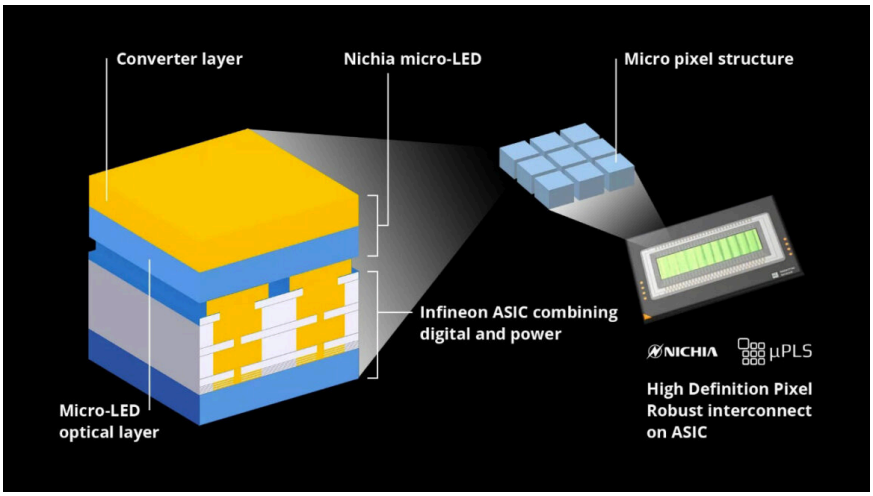
DVN Interview: Nichia's Miniaturization, Integration, Sustainability

LIGHTING NEWS

By Paul-Henri Matha

At SIA VISION, I discussed evolution of automotive LEDs with Xavier Denis, Technical Head at Nichia Europe. During the event, Nichia showcased four technologies:

µPLS: Micropixelated Light Source
Nichia's µPLS is a pioneering light engine integrating pixelated microLEDs. It is ideal for high-definition ADB applications. The µPLS delivers exceptional brightness, high pixel density with individual pixel control, and flexible connectivity, seamlessly integrating into modern electrical/electronic car architectures. The integrated driver IC, co-developed with Infineon, independently controls over 16,000 microLEDs using PWM.



Chip Scale Package (Colour): Optimized for Near-Field Projection
The Chip Scale Package (Colour) projects clear, bright images directly onto the road, helping drivers navigate safely in adverse conditions.

Chip Scale Packages (White): For Thin-Design Headlamps
Nichia's latest Chip Scale Package (White) enables the development of ultra-compact, slim and sleek headlamps, enhancing vehicle aesthetics and safety without compromising performance or efficiency.

Interior Lighting: High-CRI Light Simulates Natural Sunlight
Nichia's high-CRI products demonstrate the impact of mimicking natural sunlight, providing exceptional colour rendering to improve visibility and minimize eyestrain.

All these great products are ideal for enhancing both vehicle interiors and exteriors, contributing to safety and comfort with clear, precise lighting.

DVN: Will you please introduce yourself?

Xavier Denis: I'm Xavier Denis, the Head of Technical Marketing and Technical Support at Nichia Europe. With over 20 years of experience in lighting and optics, I have held various management roles at Nichia, GE Lighting, and Optis. My academic background includes a Bachelor of Science in Applied Physics from the Georgia Institute of Technology and an Executive MBA from Corvinus University. I am passionate about advancing next-generation light source technologies, ranging from human-centric solutions to microLEDs, and I look forward to sharing valuable insights with you today.

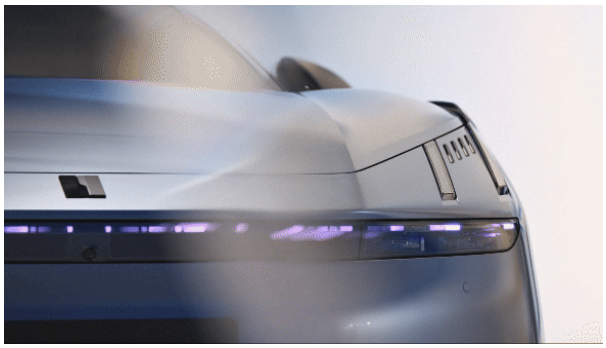
DVN: As a light source manufacturer, and a presenter and exhibitor, what stood out to you at VISION?

X.D.: We had the opportunity to do a lecture as well as exhibiting at the show. This dual presence made the congress a great platform to showcase our expertise and innovations with direct engagement with vehicle lighting professionals. The event allowed us to maximize both our visibility and networking opportunities within the industry.

As for main takeaways, the congress highlighted the transformative impact of LED technology on the automotive industry. Automakers continue to adopt dynamic and adaptive lighting systems, leveraging technologies like chip scale package LEDs, matrix LEDs, and microLEDs to improve safety. Sustainability was another key theme, with LED manufacturers focusing on delivering of energy-efficient solutions.

Automakers and tier-1 suppliers are clearly striving for stronger supply chain partnerships, encouraging LED makers to provide integrated solutions and engage early in vehicle development to deliver innovations that meet global standards and align with the evolving needs of the automotive industry.

DVN: What do you think of blue diodes versus RGB?



X.D.: RGB LEDs are primarily focused on interior lighting rather than exterior applications. This is largely due to regulatory restrictions that currently do not permit multicolour lamps for exterior use, except for specific scenarios such as parking mode. Additionally, there is the strong demand for more reliable light sources with higher power output to ensure visibility during the day, as current RGB solutions are limited to 0.5W, which is insufficient for many exterior needs.

Another challenge lies in the lack of standardization for communication protocols between LEDs through LED IC. While protocols exist, such as ISELED, and LED manufacturers like Osram or Nichia have also introduced their own open protocols. However, a unified solution that the industry can adopt universally has yet to emerge.

An alternative to RGB light sources is the use of discrete colour LEDs, all based on blue diodes with different phosphor conversion for each colour. The main advantage of this approach is to simplify the colour shift management by delivering consistent performance even at high temperatures, eliminating the need for individual PWM adjustments for each LED. Discrete colour LEDs also overcome power limitations, making them more suitable for exterior applications. Additionally, there is no need to add a fourth LED to obtain a real white colour (RGB-W solution) as this can be easily handled with broader colour gamut management. This combination of benefits makes discrete colour LEDs an attractive option for exterior lighting in automotive applications.

P.H.M: How about lasers; do you see similar trend to go to multicolour solutions?

X.D: Nichia is at the forefront of automotive RGB laser diode innovation, combining high luminance and reliability. Our QuaLas platform is the world's first SMD RGB laser to meet automotive standards. With QuaLas and TO-CAN packages paired with advanced technologies like MEMS mirrors and digital micromirror devices, these diodes enable high-efficiency and high-performance solutions for exterior and interior projections, as well as head-up displays. The diodes offer a wide colour gamut for vivid visuals, a long lifespan to reduce maintenance costs, and compact design for flexible integration across various systems.

P.H.M: Speaking of Head-Up Displays, including Augmented Reality HUDs, what technology do you think will dominate?

X.D: There are currently three solutions involving the integration of RGB LED, RGB lasers, and white LEDs, each undergoing significant innovation. For an AR HUD, higher brightness and larger sizes are required, necessitating a significantly brighter light source. Tier-1 suppliers are requesting a luminance of 10,000 cd/mm^2 – 10 times that of an ADB matrix light source. The good news is that this level of brightness is achievable with LEDs as well.

P.H.M: Do you see emerging trends in classical lighting and signalling functions?

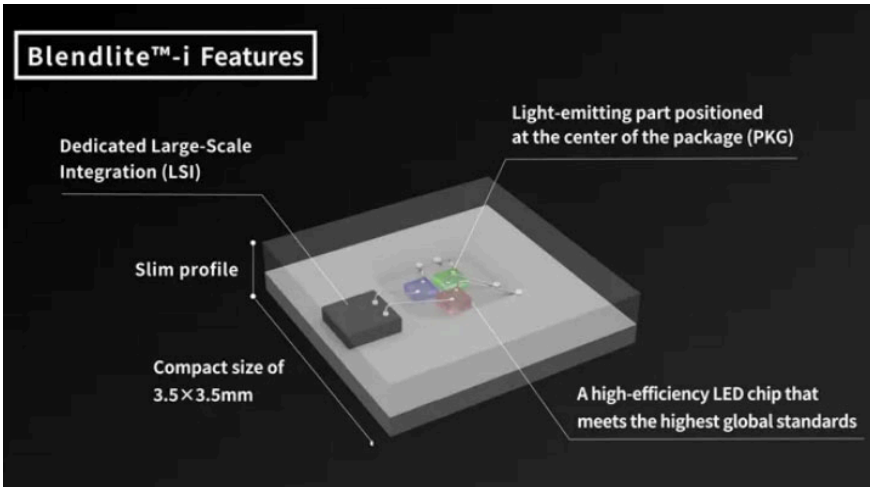
X.D: We observe two distinct major trends. The first is safety, with a focus on enhanced performance. For example, signalling projection is gaining traction, and to ensure visibility during the day, laser technology proves to be an excellent solution. The second trend is power consumption, as car makers aim to reduce power use, or expand lighting and signalling capabilities without increasing energy demands.

To address these needs, Nichia are developing chips without any saturation while maintaining high performance, and improving packages with better thermal dissipation and advanced electronic integration—such as smart LEDs and microLEDs.

P.H.M: How do you see the market developing in the coming years?

X.D: I would like to highlight six main points for a light source maker:

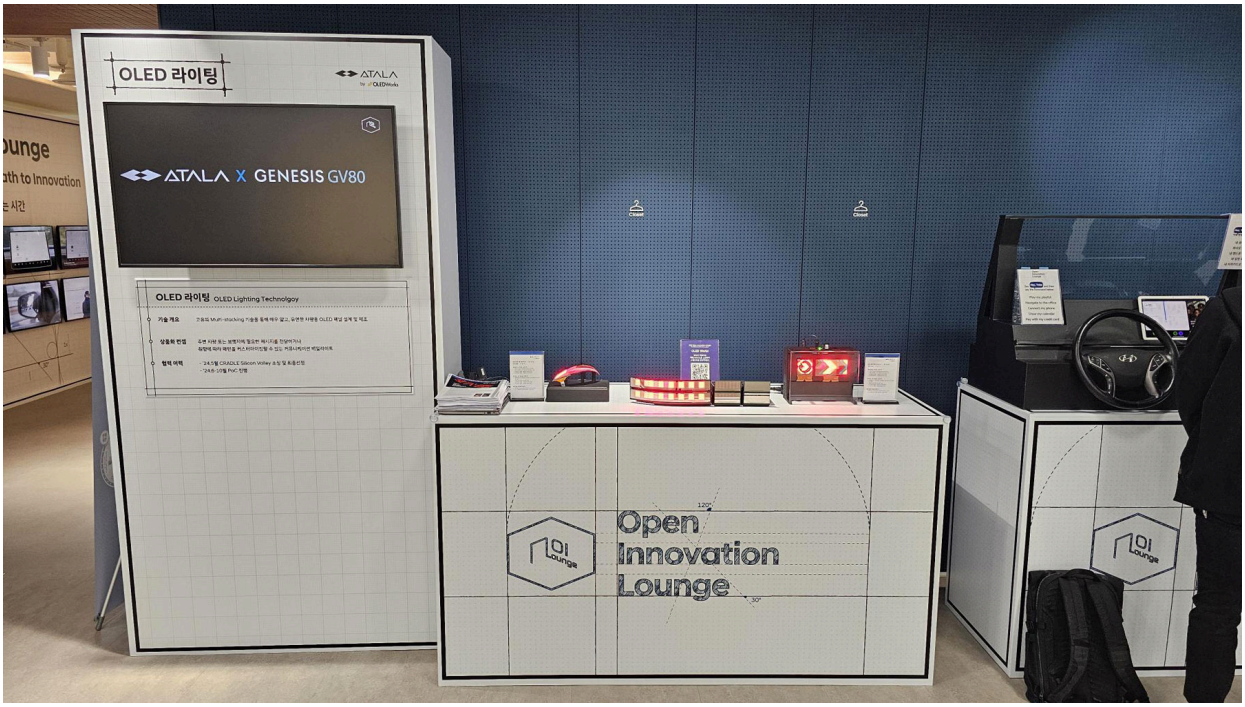
- Advances in miniaturization at the chip and package levels
- Electronic integration in package, including smart driver and even more. Our Blendlite-i RGB light source is a good example.



- Human-centric lighting continues to be a focus for interior lighting with high CRI (colour rendering index) and designs that support the human circadian rhythm, enhancing comfort and wellbeing for car occupants.
- LED deployment in cars will continue to grow, with manufacturers focusing on achieving this within the same price and same power consumption.
- Signalization extension, such as enabling bright, visible signal projection by day to improve safety and communication on the road.
- Product lifecycle assessment analysis will grow in importance and impact the way we address development and production processes, especially in terms of addressing designing light sources for re-use and repair.

OLEDWorks' Custom Atala Genesis Lighting Designs for Hyundai

LIGHTING NEWS

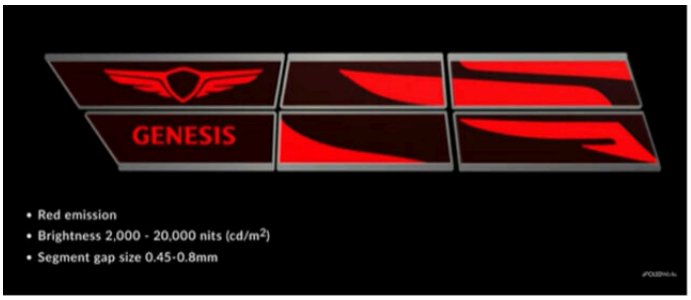


Earlier this year, OLEDWorks was invited to participate in Hyundai's Open Innovation (OI) Lounge, to share how Atala OLED lighting could enhance the lighting potential in Hyundai's vehicles. To prepare for the event, they met with the Hyundai Product Division and CRADLE teams, and worked together to create custom lighting concepts and technology demonstrations of OLED lighting for the Genesis GV80.

In preparation for the event, the Hyundai Product Division and CRADLE teams worked collaboratively with the OLEDWorks' design and technical teams to develop three rear lighting concepts to showcase how Atala OLED lighting could be designed for the GV80 to elevate the brand and passenger experience. The teams were inspired by existing Hyundai and Genesis design architectures, and incorporated many elements into the OLED panel design. It was important to ensure the light designs felt like they naturally fit within the Genesis brand, so brand elements were directly patterned into the OLED segmentation design—such as the diamonds found in the leather seats and grille of the GV80, and the wings of the Genesis logo.

It was also crucial that the Atala team propose lighting solutions possible today, not just exciting to think about for the future. OLEDWorks engineers worked to ensure that design concepts presented to Hyundai were ones that Atala team could cost-effectively bring to production with high quality. To provide a comprehensive picture of how OLEDs can be integrated within a vehicle, they produced animations of red panels for the tail and stop light functions, as well as white OLED panels for front badging and interior illumination.

After the concepts were designed and rendered, the OLEDWorks team travelled to the OI Lounge event in Seoul, where they showed their work to the Hyundai team of designers, engineers, and executives. In addition to rendered design concepts, they created a physical lighting prototype using modular OLED lighting panels housed similarly to how the custom panels would sit within the rear lighting module of a Genesis GV80. The prototype included both rigid and bendable Atala panels, showcasing the variety of forms that OLED lighting panels can take.

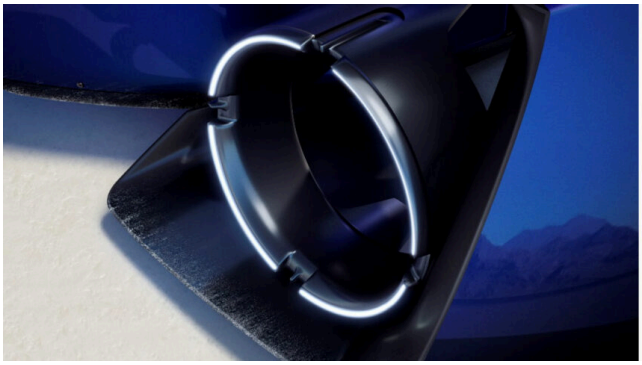


The 2025 Renault Filante Record

LIGHTING NEWS

Renault have revealed the Filante Record, inspired by the 1925 Renault 40cv and the Renault Filante of 1956. The new car will be showcased at Paris Retromobile from 5th February.

Great big round circles are a really nice front lamp signature inspired by the 40cv.



The side and rear are a sort of mix of both vehicles, with a new interpretation. Aerodynamics and efficiency are clearly strong trends for EVs; will the SUV survive…?

Bharat Mobility Global Expo '25

LIGHTING NEWS

The Bharat Mobility Global Expo 2025 brought together cutting-edge innovations and global automotive leaders. Held at Bharat Mandapam, Yashobhoomi in New Delhi, and IEML in Greater Noida from 17th to 22nd January, this six-day event featured over 1,500 exhibitors, 34 OEMs, and attracted an estimated 500,000+ visitors.

You'll find the full report here, but in the meantime, some key DVN takeaways:

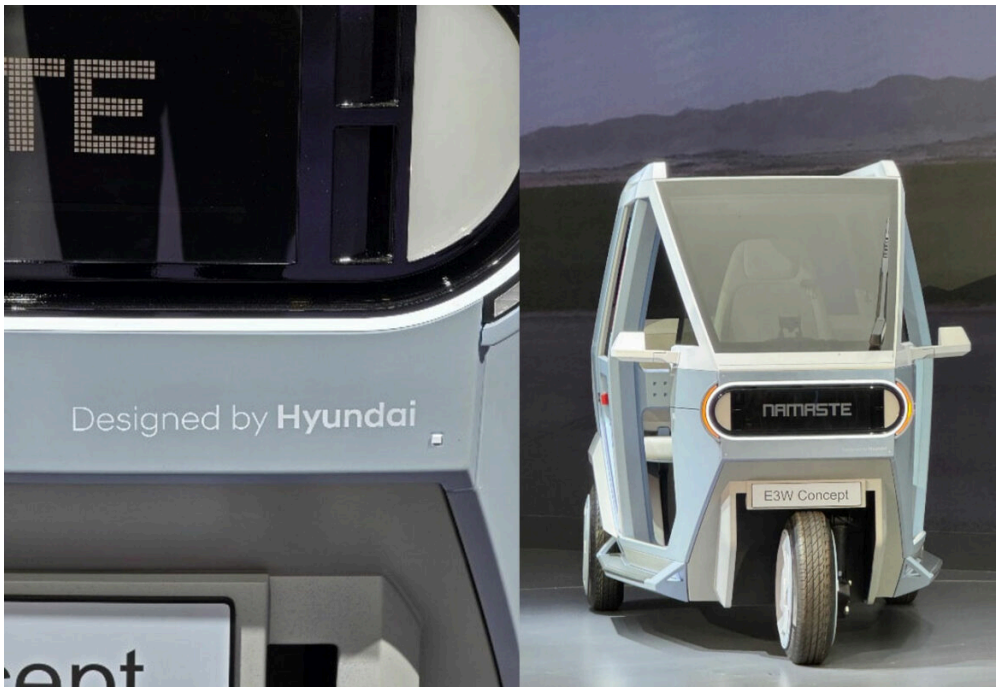
The new **Tata Avinya** with full-width light stripes and new Tata signature incorporating lit logo:

The new **Tata Sierra** with similar full-width light lines; the rear one is similar to Audi's Q5 with supplemental lamps to replace the displaced functions when tailgate is open

Mahindra's Be6e and **XEV 9** with sequential animation and slim details

The **Maruti e-vitara** with new DRL signature

The **Hyundai EW3** concept with front display



The lighting community was very well represented, with big booths from Uno Minda, Valeo, Varroc, and Neolite ZKW.

Uno Minda

Maruti Suzuki Product Planning team - Katyal san, Gaurav San, Abhishek San

Valeo

Varroc

Neolite ZKW

Lighting Suppliers on Renault 5

LIGHTING NEWS

Renault's 5 has just been elected European Car of the Year. A lot of lighting suppliers were proud to communicate that they are part of the project:

- Antolin: LED modules, reading lamps, and pillar trim (on top of headliners, door panels)

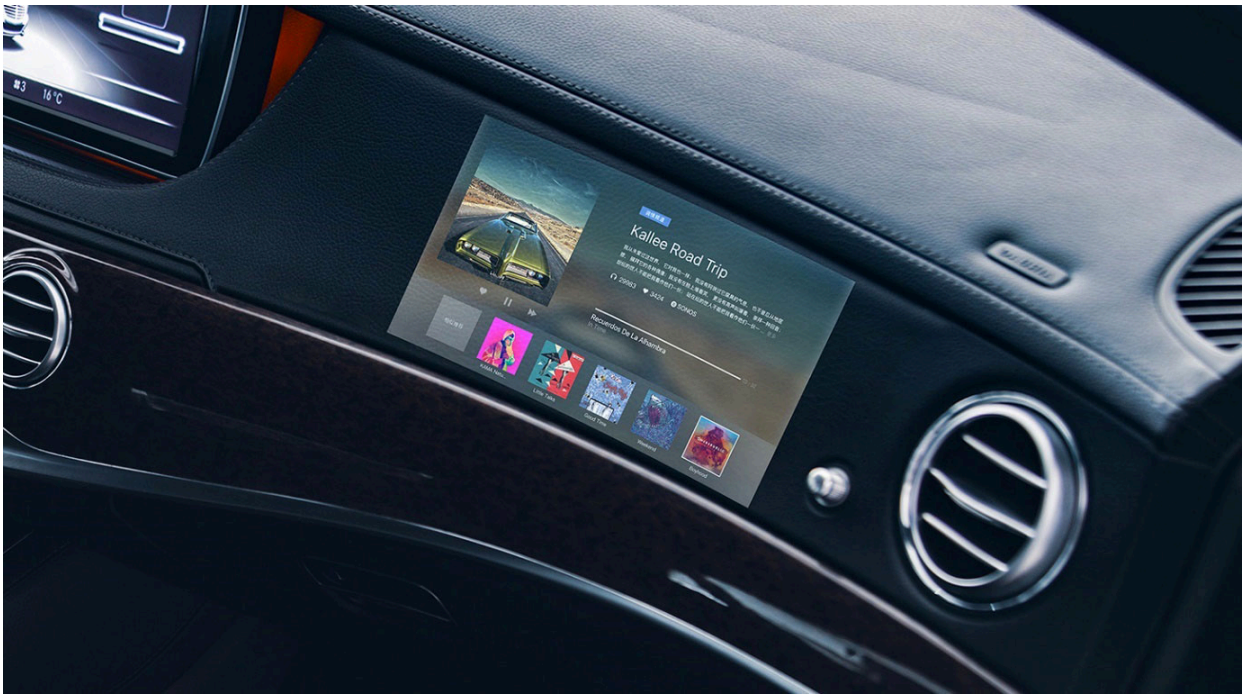
- Valeo: headlamp and rear lamp

- Flex-N-Gate: vehicle state-of-charge indicator lamp with bars that light up progressively to reveal the emblematic number 5 once the charge is complete. It also incorporates a friendly welcome / good-bye button as the driver approaches or leaves the vehicle.

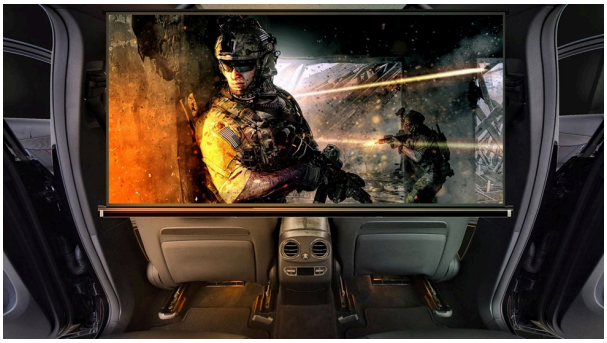
  Flex-N-Gate commented that this product is the result of development between several FNG departments in France, Spain, and the USA, highlighting the crucial importance of synergy of skills and expertise around the world, as well as much-appreciated collaboration with Renault. FNG produces this indicator module at their FNG Plasticos and FNG Marines plants, and the technical front panel at their FNG Espana and FNG Marles les Mines plants.

Appotronics' 2024 Revenue

LIGHTING NEWS



Appotronics recently declared they expect to have achieved income of about C¥2.418bn in 2024, a year-on-year increase of about 9.26 per cent. Their automotive optical business result is impressive; it started mass production in 2024, and achieved revenue over C¥600m.



The company made extensive contact with well-known automakers in China and abroad, and obtained 10 design wins covering automotive-grade giant screens, laser projection lights, vehicle lamp modules, dynamic colour pixel lamps and other products, and have smoothly achieved mass production for some of these.

In fact, 2024 is the first year for Appotronics's automotive optics business to achieve revenue. In the first year of the business, the revenue of this business segment accounted for about 24.8 per cent. Appotronics delivered the industry's first automotive-grade projection giant screen for the Aito M9. According to media reports, in just 12 months after its launch, M9 sales had exceeded 200,000 units, ranking first in the monthly sales of models over C¥500,000 in the Chinese market for 9 consecutive months—breaking the sales record of luxury brand models in the domestic auto market.

In addition, as the world's first automotive optical supplier to obtain design wins for laser projection intelligent headlamps, Appotronics took the lead in realizing mass production. In October 2024, the Smart Elf #5 was officially launched, equipped with the industry's first full-colour outdoor automotive laser projector developed by Appotronics, which can project a 233-inch ultra-clear picture, providing consumers with an excellent experience for camping and entertainment. With their reliable supply

chain capabilities and product delivery ability, Appotronics have been recognized as an "excellent supplier" by Geely Automobile.

At CES this year, Appotronics presented full-colour exterior laser projectors and newly upgraded laser headlamps, and announced coöperation with Ceres Holographics to promote the application of transparent HUDs in international markets, and at the same time launched innovative achievements such as split-type fibre headlamps, thumb-size projectors, PHUDs (panoramic head-up displays) and laser beam scanning displays.

BMW iX facelift and new front

LIGHTING NEWS

The key exterior change is a revamped version of the large kidney grille, in this case a panel that houses many of the sensors for the car's advanced driver assistance systems. The new design features vertical line elements that run through both the kidney grille and the LED headlights and that, said Hammersen, are intended to "reduce the dominance of the kidney".

General News

Suppliers Demand EU Local-Content Rules

GENERAL NEWS

As the European Commission open a strategic dialogue in Brussels on the future of the European automotive industry, representatives from the European automotive sector are urging the E.U. to set regional content targets. The group of 15 executives presented this statement:

"The European automotive industry is facing the most significant transformations in its history. Technologies, production methods, markets and players are rapidly evolving.

"In the face of this revolution, we have substantially invested in the shift to electric and software-defined vehicles, and we are already providing solutions for a more sustainable mobility, including solutions powered by hydrogen or e-fuels.

"We welcome new entrants with confidence. As global players, we already work with non-European car manufacturers, and we welcome new competitors as they drive us to innovate further and find solutions to make new vehicles more affordable.

"However, competition must be on a level playing field. The automotive industry is a mass production industry that plays an important role in national and regional economies. It is not limited to car manufacturers but involves a whole network of suppliers and indirect contributors responsible for 75% of the content value of vehicles. In Europe, this ecosystem of suppliers represents 8% of GDP and 13 million jobs, with a similar impact observed in other regions of the world.

"In recent years, the geopolitical shifts and successive global crises have altered the competitive balance between regions. Since COVID, the competitiveness gap between China and Europe has widened by a striking 25 points. As a result, countries around the world have introduced measures to promote fair competition and retain added value locally. For instance, the United States revised the USMCA with Canada and Mexico to introduce a measure that requires products from manufacturers to include a mandatory threshold of 75% local production content. This approach not only protects the car manufacturers, as with a tariff-only policy, but also the entire automotive ecosystem, ensuring that products are not only assembled in North America but also include significant added-value produced in the region.

"It is time for Europe to take similar action and implement comparable regulations which require added-value content in Europe. This will strengthen European sovereignty while protecting fair competition. Without such a mechanism we risk a major loss of value among automotive suppliers and equipment manufacturers which would significantly weaken the whole sector.

"As we strive to drastically reduce CO_2 emissions, it is also essential to avoid focusing solely on the cost of materials and equipment. Importing equipment from low-cost countries without considering the climate impact of their transport and production is counterproductive and undermines fair global competition.

"Today, we urge the European Union to set, within a global industrial strategy, clear targets of regional content for the automotive industry, and leverage all tools to achieve them. We think it is urgent to have a clear industrial policy for the key intermediate value chain, the biggest contributor in jobs and innovation.

"Automotive suppliers are delivering the innovations that make the transformation a reality. The focus must now shift to making the transition work for our industry in Europe."

This text has been signed by:

***Adler** (Paolo Scudieri, CEO) · **Anfia** (Roberto Vavassori, President) · **Brembo** (Roberto Vavassori, Executive Board member) · **Elanova** (Franck Dessaintjean, Chair) · **DTS** (Marco Stella, CEO) · **FFC** (Patrick Nardou, President) · **Federation Forge Fonderie** (Hervé Gestas, President) · **FIEV** (French Federation of Vehicle Equipment Industries; Jean-Louis Pech, President) · **Federation des Industries Mecaniques** (Henri Morel, President) · **Forvia** (Patrick Koller, CEO) · **GPA** (François-Xavier Lemasson, President) · **OP Mobility** (Laurent Favre, CEO) · **PFA** (Luc Chatel, Chair) · **SDCM** (Tomasz Beben, Chair of Board) · **Valeo** (Christophe Périllat, CEO)*

To go further ...

Advanced Lumax Headlamps on Mahindra Be6E

To go further ...

Lumax just shared a lot of details on the new Mahindra Be6e with C-Shaped LED DRLs, Horizontally Stacked LED Projectors, Sleek and Modern Design