

Tue, 29 November 2022
Weekly Newsletter



NEWSLETTER #779

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

SAMSUNG



Editorial

Let's Go To The Auto Show!

The Trend speaks clearly against the big Auto Shows. Covid was a mayor acceleration for this trend, but it was already on its way before. Many OEMs change to digital presentations and /or dedicated brand or model presentations for the press, instead of booking a big booth on an Auto Show. DVN thinks that the impression of a real car is absolutely necessary to build an opinion. DVN continues to visit Auto Shows, even in a reduced format like this year in Paris: What do you think?

At the same time, just about every corner of the automotive world is changing these days. There's a lot of shift and drift, a great deal of disruption, and new things to see everywhere we look. It's important to look, too, because all these changes really matter when it comes time to make decisions about product design, R&D resource allocation, and other matters crucial to success in the hypercompetitive world of wheeled transport. Lighting is going from strength to strength not only in terms of functional safety, but also in terms of design; fashion; brand identity, and user experience. That's the big umbrella trend under which all the others are happening.

This week we bring you a peek at the lighting details of around 30 models launched this past August through November, including those presented at the Paris Motor Show last month.

[Link to the report](#)

You'll find descriptions of the latest trends, illustrated with photos of examples. Some of these trends are already well-established; some are beginning to gain traction, and some are brand new. All of them are worth scrutiny, and that's why we're on duty. For more than just a peek, check out the report we've published today. And stay tuned; we'll be bringing you details on the cars at the Los Angeles auto show next month.

We're glad you're here with us!

Sincerely yours

A handwritten signature in black ink that reads 'W. Frally'. Below the signature, the text 'DVN CEO' is printed in a small, black, sans-serif font.

In Depth Lighting Technology

A Look at the Lights on the Latest Launches



[DVN published today a report](#) on the latest models launched from August to November, excluding those at the Los Angeles show which will be covered in their own report soon. Here are the main trends we see:

- **Full-width front & rear lights; illuminated grille patterns**



- **Thinner and thinner lights**



- Special structures in lights, which are becoming art objects



BYD Atto 3



BYD Han



Mercedes-Benz EQE

- Signature lighting with same shape in front and rear



Alpine Alpenglow



Alpine Alpenglow



Dacia Manifesto



Dacia Manifesto



Hopium Machina



BMW 7-series

- DRL as key lever for lighting signature with other front lights hidden



DS DS3



Renault 4ever



Polestar 3



Hyundai Grandeur



Mercedes-Benz EQE



Mitsubishi XFC Concept

- Chinese lighting design comes to the table



BYD Han



BYD Seal



Great Wall Ora

Lighting News

New Version of Thor's Hammer Defines Top Volvo's Face

LIGHTING NEWS



Volvo Cars' exterior design boss T. Jon Mayer loves the headlamps on the new EX90 electric SUV. He says, "My favourite part of the car is the new Thor's Hammer headlights. We asked ourselves a key question: how can we improve this unique signature from where it is today and create a more legible signature that is equally distinct as a hammer both day and night? The team came up with a clever solution. Now, the hammer is thicker and provides more of a digital start-up appearance rather than a straight line like before. During the day, it's lit and closed, but at night, it opens up to get light on the road from the low and high beams. The result is kind of like an eye movement that delivers on that humanistic expression we always strive for in a more literal way. It's a striking example of Scandinavian design where we solved a visual execution challenge with new technology."



Developed by the Volvo Cars Lighting Design; UX, and R&D teams, the horizontal part of the light mechanically opens up to reveal the main light units—a bit of a modern twist on yesterday's hidden headlamps. In broad daylight or in dark of night, the hammer shape is always visible. Functionally, the headlamp contains Texas Instruments' 1.3-megapixel DLP unit which projects animations and provides a smooth, high-resolution ADB to create the best driving experience for the driver and everyone sharing road space with them.

Valeo's Super-Slim Lighting Modules

LIGHTING NEWS

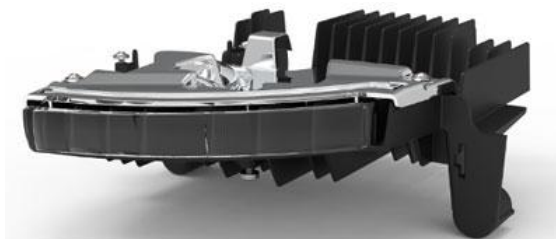


VALEO ULTRA-THIN LENS IN THE HAVAL SHENSHOU HEADLAMP

Market trends are pushing relentlessly toward very thin lamps, and Valeo have been responding with a spate of innovations:

Ultra-Thin Lens, which won a Chinese Gasgoo award, is a new range of modules just 15 mm high. The first one in production is on the Great Wall Haval Shenshou, launched a year ago. This car topped 10,000-unit sales in its first two months on the Chinese market; clearly buyers respond favourably to the car's design—including its thin continuous light signature. Valeo have won contracts from other automakers, and we'll see more of these lights on forthcoming vehicles in Europe and the US.

The **Thin Bilite** lighting module won an innovation award from the CES committee. This technology is also just 15 mm high, but offers both low and high beam from a single module. This new version, too, is very successful with six vehicle programs presently under development (and counting).



THIN BILITE LIGHTING MODULE

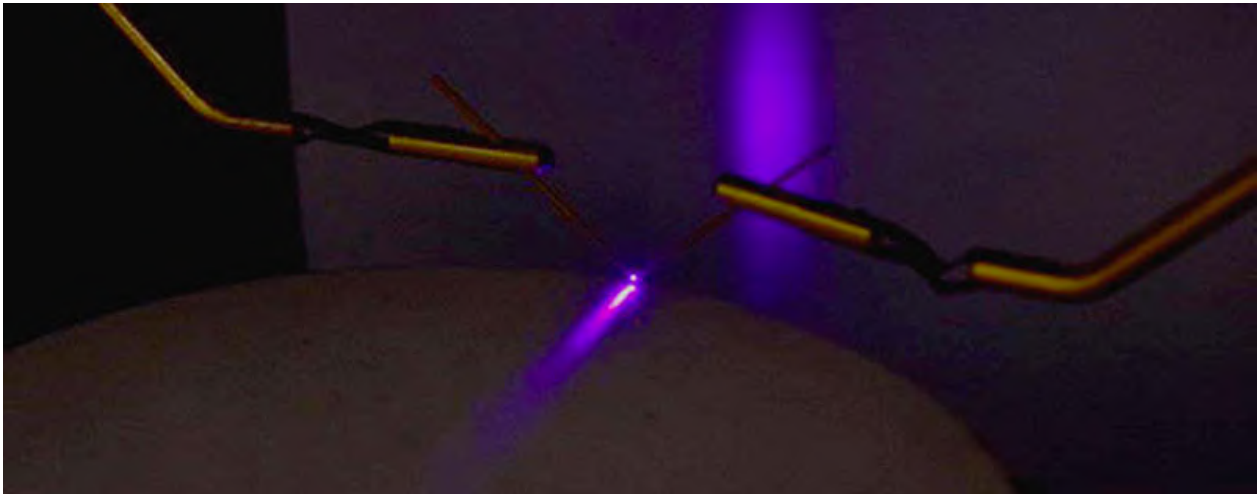
LineLens, as showcased during the last VISION Congress, is Valeo's next module generation in progress, slicing the height to just 5 mm!



VALEO LINELENS LIGHTING MODULE

Kyocera's New GaN Laser Chip

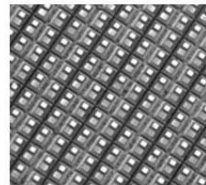
LIGHTING NEWS



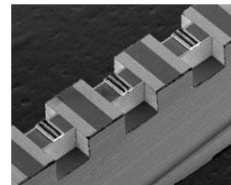
Kyocera have a new thin-film process technology for making unique silicon substrates for GaN-based lasers and μ LEDs. A micro-light source is one with a side measuring less than $100\mu\text{m}$. Because they offer key performance advantages—higher definition; smaller size, lighter weight—micro-light sources are considered essential to next-generation automotive displays; wearable smart glasses, and communications equipment. The market for μ LED chips alone is expected to reach USD \$2.7bn in the foreseeable future.



100- μm -LONG LASER



μ LED SUBSTRATE



100- μm -LONG LASER

MicroLEDs and lasers have typically been fabricated on sapphire and GaN substrates. Conventional processes involve forming a thin GaN device layer for the light source directly onto the sapphire substrate by heating it to a high temperature in a controlled gas atmosphere. The device layer has to be then removed, or peeled, from the substrate to create a GaN-based micro-light-source device. Despite rising demand for smaller devices, though, significant challenges constrain the ability of this process to achieve miniaturisation targets soon.

So Kyocera developed their new process technology at the company's Research Institute for Advanced Materials and Devices in Kyoto, Japan. They grow a GaN layer on a silicon substrate available in high volumes at a low cost. The GaN layer is then masked with a non-growing material with an opening in the centre. When a GaN layer is then formed on the Si substrate, GaN nuclei grow over the opening in the mask.

Micro-light sources are expected to improve the brightness; resolution; efficiency; transparency, and affordability of automotive displays, and to expand rapidly in AR/VR applications.

Geely's New Xingyue L Hi-P

LIGHTING NEWS



Geely Automobile's new Xingyue L Hi-P officially launched has not changed much from previewed and petrol-powered versions; only the style of the front fog lamps has been fine-tuned to improve the recognition of the vehicle.

The grille has a dot-matrix design decorated at both ends with white light lines; the front logo can also be illuminated. The rear lamps are similar to those on the combustion-engine car, with a full-width light band.

Driver Assistance News

Lidar's Prominent Position is Iconic: Volvo's Design Boss

DRIVER ASSISTANCE NEWS



Volvo's new electric top-of-the-line EX90 SUV will incorporate a lidar unit integrated into the roofline under a low-profile cover, which Volvo say provides optimal safety performance and an attractive appearance.

T. Jon Mayer joined Volvo Cars in 2010 as a senior exterior designer and is now head of exterior design. He says, "When we first heard about the integration of lidar, we immediately reacted by trying to hide it in the lower [part of the front of the car]. But to quote our lidar development teams, in the animal kingdom you don't see animals walk around with eyes on their knees—they are up high on the head to see as far forward as possible'. The same is, of course, true for lidar. Since the whole point is to increase vision, then placing it high up on the roof was the clear option. It's been quite a challenge from an exterior design perspective, but the lidar's prominent position is really an icon of 21st century automotive safety, much like the 3-point safety belt was in the last century".

Marelli, CEA-LETI in Tinker Project: See it at DVN Lidar Conference

DRIVER ASSISTANCE NEWS



The Tinker Project, funded by the EU Horizon 2020 research and innovation program and started in October 2020, involves 15 top EU innovation performers—industrial companies; research specialists; consultancies, and service associations—from eight European countries. www.project-tinker.eu

Marelli's activity with CEA-LETI on the Tinker Project is motoring along, taking up the challenge to develop a reliable; accurate; functional; affordable, and efficient means of radar and lidar sensor package fabrication for autonomous vehicles. Marelli have been contributing to the development of a novel automotive lidar targeting lower cycle times; smaller size, and reduced cost by using technologies such as Nano Imprint Lithography and Through-Silicon Vias.

The results so far will be showcased by Marelli's ADAS & Smart Corner business development manager Frederic Chave at the [DVN Lidar Conference](#) starting tomorrow in Wiesbaden, Germany.

Zvision Lidar on Baidu Apollo RT6

DRIVER ASSISTANCE NEWS



Baidu's Apollo RT6 will be equipped with a new generation of blind compensation lidar from Zvision, to promote multi-scene applications and comprehensively improve the vehicle's perception capabilities while driving autonomously without input from a human.

The RT6 has Baidu's latest unmanned driving system, which has a stronger L^4 autonomous driving capability than the previous model and can cope with complex roads and scenarios in the city. The car's autonomous driving capabilities have been verified with over 36 million kilometres' worth of testing.

At the same time, Baidu's Radish Go platform has realised autonomously-driven travel services in more than a dozen cities in China, with more than a million rides ordered, allowing Baidu to accumulate a great deal of experience in autonomous driving operations.

To maximise the Apollo's autonomous driving capabilities, it has eight lidars in the core perception hardware. Four of these are new blind compensation lidars around the body, giving reliable and stable wide viewing angle and long-distance, high-resolution three-dimensional depth perception capabilities.

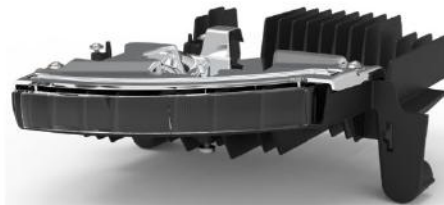
General News

Valeo Scoop Four CES Awards

GENERAL NEWS



Valeo have received CES 2023 Innovation Awards in the Vehicle Tech and Advanced Mobility category for four technologies making mobility cleaner; safer, and smarter: the Thin Bilite lighting module; Interior Immersive Fascia; Valeo Cyclee, and Trained Park4U. Watch for more information coming soon!



1. THIN BILITE
15-mm height providing low + high beam from single module.



2. INTERIOR IMMERSIVE FASCIA
Dynamic lighting and backlight solutions



3. CYCLEE



4. TRAINED PARK4U

Forvia Materi'act to Develop, Produce Sustainable Materials

GENERAL NEWS



Forvia have created Materi'act as a new brand to develop and manufacture sustainable materials on a greatly increased scale and pace.

Materi'act develops, sources, produces, and sells materials with up to 85-per-cent CO₂ reduction versus current materials. The range of products includes recycled; bio-based, and carbon-capturing compounds; bio-based foils; low-CO₂ carbon fibers, and green steel for the automotive industry and others. All sustainable materials from Materi'act are aligned with the European Green Taxonomy.

The new entity brings more than 10 years' expertise in formulating and processing recycled and bio-sourced materials, including experience in variability management.

From waste and bio feedstock management to renewable materials, Materi'act mobilizes an entire ecosystem. For example, biomass introduction in compounds is enabled by the APM joint venture with Interval, an agricultural cooperative producing hemp and related co-products such as fibres. Recycled content introduction in compounds is enabled by a joint development agreement with key partners like Veolia. Biomass introduction in coated materials is supported by a joint development agreement and a commercial agreement with Ananas Anam to develop and sell a sustainable alternative to leather, made from waste pineapple fibres. By developing strong partnerships for bio-sourced and recycled materials, Materi'act is securing both feedstock quantities and industrial readiness to meet customers' performance requirements and to have a sustainable impact on the industry.

Materi'act will be headquartered in Lyon, France. A new research and development centre as well as a pilot workshop will be onstream next year. Materi'act will employ 400 people by 2025 and generate over €2bn by 2030.