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Ultimate precision in perfect alignment

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



# Editorial

## Valeo Lighting Belgium: Classic And New Lights

I had the chance to visit Valeo's Special Products division in the Ath area of Belgium. It's managed by Laurent Evrard, former R&D director of Valeo Lighting Systems. I know him very well as a passionate lighting engineer, who progressed from Project & Engineering through manufacturing. He worked several years with me and then he succeeded me as the head of R&D of the Lighting Product Group during 8 years. Since 2019, he is in charge of Special Products in the Lighting Product Group.

Special Products is an activity of Valeo's Visibility business group, which is led by Maurizio Martinelli. They focus on lighting products other than main headlamps and rear lamps. A decade ago, fog lamps were their main product, with a volume of thousands every day. By this high-volume production, they acquired great expertise in automation techniques they use now for their new products. I saw several production modules without any worker attending, for none was needed. Read all about my visit in this week's in-depth.

**Don't forget** the Tokyo DVN Workshop coming soon on 6-7 June! That's just a few weeks away, so if you haven't yet signed up, come and [register](#). I'm looking forward to seeing you then and there.

  
DVN CEO

# In Depth Lighting Technology



## Valeo's Adept Automation churns out special lamps



This is an account by DVN CEO Hector Fratty of his recent tour of the Special Products operations within Valeo's lighting product group. Three kinds of systems and products are presented, representing the present and the future of the activity: fog lamps; light projection modules, and illuminated logos. And there's an interview with Laurent Evrard, as well.

### Fog lamps

Halogen fog lamps are still in production, but LED units are the main thing now, with great innovative solutions like innovative heat sinks and a variety of tactics to reduce volume; weight, and cost.

### Light projection modules

Valeo produce a large volume of light projection modules, and are ready to increase the production for the three big markets—Europe; North America, and Asia. They are working on innovative evolutions of MLA (microlens array) technology, as well as all-new

solutions. Today, Valeo are producing modules with one image. They're developing solutions producing several images using several modules giving dynamic feeling, with SOP scheduled this year for the Chinese market. Other developments in progress include solutions to personalise the light projection; to make video and using OTA technology to better sell the product.

## **Illuminated logos**

Valeo produce illuminated logos—VW is an example—for the Chinese market where local regulations allow such systems, and they're developing illuminated logos able to serve as radar transmitters. For the European market, Valeo are working on the ways to comply with the impending regulations, which will include restrictions on factors such as the dimensions of a lit logo. We expect an acceleration of the demand, when regulations will be defined. And for the American market, we see automakers getting interested in lit logos, as well.

## **Plant site visit**



The first feedback after visiting the plant is the level of automation in module assembly. Some areas—fog lamp, for example—require only one person working on module assembly, and even nobody for the assembly of light projection modules using MLA components. With heavily-automated processes, human hands are required only to introduce the components and to take the finished deliveries. We no longer see visual control with employees checking the components day and night; there is an automatic control everywhere without employee as visual aspect, using a camera to scan the component and associated software which reduces cost and also improves quality.

There are also areas, such as assembly of full-width front position lights and illuminated grilleboards, where the automation is impossible to manage—this points up the difficulty of such assembly lines.

Another great change in this plant is the total absence of papers and panels presenting quality and production indicators; they're replaced by screens.

To summarise: Valeo have succeeded spectacularly in their evolution from robotised halogen fog lamps to highly-robotised LED fog lamps, and now to other tech products. The experience of robotisation has been applied to the production of other products, such as light projection modules.

## **Laurent Evrard: “We can provide software allowing user to customise illuminated surfaces”**



Laurent Evrard is Graduate from “Institut d’Optique Graduate School” (Ecole Supérieure d’Optique) in France. After 8 years as the head of R&D of Valeo Lighting Systems, in 2019, he took charge of Special Products in the Lighting Product Group

### **DVN: Could you present your activity inside Valeo Visibility?**

**Laurent Evrard:** Special Products is part of Valeo Lighting System Product Group and structured with four Development Centers—Mexico; Belgium; Spain, and China—and five plants on three continents. We develop and manufacture auxiliary lighting products (fog lamps; CHMSLs; innovative side projection systems; lit logos, etc) for all auto and truck makers. Our second activity is interior lighting, in which we serve our customers on the three continents.

### **DVN: We're in a time of great change, through sustainability/climate change; Covid outbreaks; Russia's war on Ukraine; semiconductor shortage, inflationary period. How do you see lighting activity in this year and in the next years?**

**L.E.:** The automotive sector is going through its biggest transformation period. Under these constraints, our customers reshuffle their product portfolio. This represents for us a lot of product and industrial changes. But it also generates many exciting opportunities, which we grab thanks to the competences of our people and our industrial assets. This means a lot of agility!

### **DVN: How do you see the future of automotive lighting with the arrival of EV and AV?**

**L.E.:** Electrification creates new and additional opportunities. With the removal of the grille, stylists now have the freedom to rethink the entire front of the vehicle. Adding Lighting is one way to affirm the differentiation of the manufacturer brand. It also allows you to hide cameras, sensors and cleaning systems. With the increasing level of automation from  $L^{2+}$  to  $L^4$ , cleaning of sensors is becoming increasingly important to ensure 100 per cent of their performance regardless of the weather conditions. Valeo have unique cleaning solutions and a broad sensor portfolio. All this expertise inside Valeo allows us to propose optimised solutions. This is a strong advantage! Automation will also accelerate the need to communicate with the outside world, and thus digital lighting around the vehicle. With the pixelation of the signalling, it becomes possible to communicate with pedestrians and the complete external environment.

By consequence, Interior lighting also benefits from this transformation as it also becomes a mean of communicating with passengers. It is also becoming an important differentiation factor of the brand. We are able to provide software tools allowing users to customise their illuminated surfaces. We already have solutions on the shelf; here also, lighting is everywhere!

**DVN: Some are thinking that tier-1s will have to deliver more and more the entire front end including headlamps and illuminated grilles. “The front will be the headlamp”. What is your feeling?**

**L.E.:** Indeed, this is clearly a strong trend. Valeo are ready to answer all kinds of front lighting combinations, Valeo Lighting Systems have recently announced partnerships with SRG Global and Ningbo Swell to provide full solutions. In Special Products, we develop bricks of this front-end which I believe the market will need. Our model is built on robust solutions manufactured at large scale. This will be a significant part of the market still for the next few years.

**DVN: What are the main challenges of your activity?**

**L.E.:** Regarding Special Products, the deep market transformation requires our teams to develop a real talent of adaptation, agility, competence acquisition and maintain the best service to our customers. I’m very conscious of all their efforts and very proud of their achievements! In these times of uncertainty, our challenge is definitely to select the right product with high volumes to fully benefit from our competences in highly automated equipments.

**DVN: What are your main achievements since your arrival in Belgium?**

**L.E.:** Our development and production teams have developed a real customer intimacy which allowed us to gain trust in both fields. We have also improved our ability to launch new products. This gave us access to several key pre-developments and first awards on significant new technologies. I’m really proud of their achievements. Another significant step has been to adapt the very automated equipments from fog lamps to new products, which have become now totally robotised installations prepared for new products and technologies across the product line.

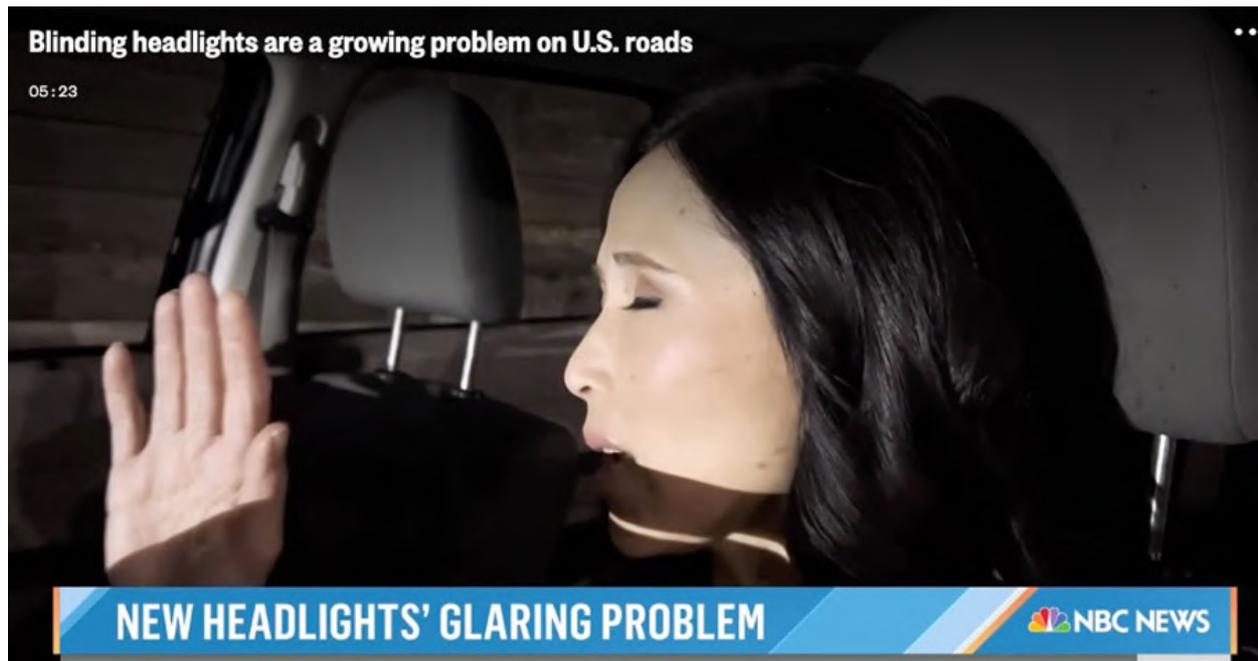
**DVN : What about interior lighting?**

**L.E.:** This is a growing market driven by a massive adoption of dynamic interior lighting and a nascent sophistication with the interior projection. We already deliver a large number of vehicles on the three continents, and produce already high volumes with a very high level of automation. We have established a partnership with Motherson which allows us to offer innovative lighting integrations to our customers. Next steps in preparation are larger surfaces with coloured, dynamic and optical effects through precious materials. You’ll see them soon on the road.

# Lighting News

## Dim Seeing, Bright Glare in USA: NBC News Gets It Right

LIGHTING NEWS



A couple of weeks ago, DVN [reported](#) on an American crackpot's untethered-to-reality ideas about headlight glare. In that report, we lamented the tendency of mass media to do a poor job of discriminating between valid information and nonsensical noise in addressing topics related to driver vision and vehicle lighting.

To be entirely fair about it, lighting for drivers is a constellation of topics much more complex than is widely understood, and conveying the important points to a general audience in a manner they can grasp is a difficult task. So we were pleasantly surprised at NBC News' highly excellent [report](#) on those very topics last week. They interviewed legitimate experts, and they quoted the most relevant parts of what they had to say. More, they astutely detected when they were being fed nonsense and noise on the subject, and excluded it from their article, much to the crackpot's meltdown-level [dismay](#).

The NBC piece accurately describes problems with NHTSA's ADB rule, at a level understandable by someone who knows nothing about car lights beyond works/doesn't; on/off; bright/dim; steady/flashing, and white-amber-red. They even came close to explicitly calling attention to one of the spectacles in this arena: The U.S. Congress gave NHTSA a direct order to adopt the SAE J3069 ADB standard, yet NHTSA deliberately didn't.

We can all hope to see more of this kind of report Better: we can all do our utmost to help there be more worthy public coverage like this.

# Plastic Omnium Drives New Mobility: CEO Favre

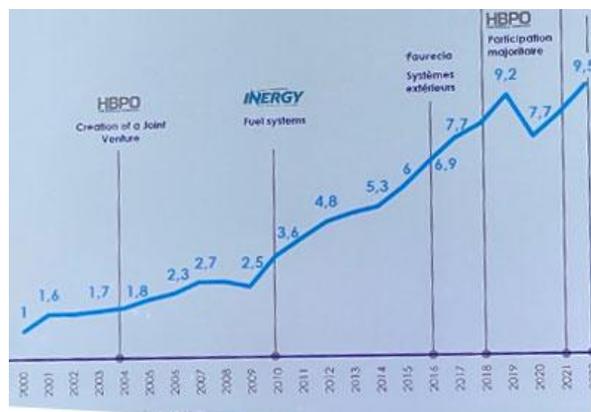
## LIGHTING NEWS



Plastic Omnium CEO Laurent Favre put on a conference in Paris on 15 May. In it, he described the dynamics of new-generation mobility in context of market challenges which have come in waves: Dieselgate; Covid; new automakers and suppliers, and growing Chinese power.

He first presented his company of 40,000 employees; revenue of €9.5bn, and strong growth in interior and exterior components and systems.

The global footprint is 29 per cent in North America; 48 per cent in Europe, and 12 per cent in China. PO Lighting, with the recent acquisition of Varroc's lighting operations and AMLS, brings revenue of €1.2bn.



PO have integrated technologies to serve new-mobility needs for vehicle interiors and exteriors, including:

- 'Intelligent' exterior systems: front and rear parts; advanced materials and processes.
- Front-end modules and active aerodynamics.
- Front-end lighting; interior lighting; projections, and bodyshell lighting.

PO offer a safer travel experience by adding 'intelligence' to body parts. One of their

latest lighting innovations uses microLED projection modules to project, on the road in the driver's visual field, speed limits or navigation arrows or vehicle-width guidelines.

### **Favre's two main messages:**

#### **Four megatrends of the automotive industry:**

- Zero-emission
- Connected and digital vehicles: growing share of software
- ADAS and Autonomy
- User experience: introduction new functions, design through lighting becoming critical

**The automotive market is transforming** with inflation; a restarted Chinese market; supply chain stabilisation, and powertrain mix evolution—in 2027, EVs are forecast to be 37 per cent of new-vehicle sales in Europe; 47 per cent in China (for a total of 90.4 million, challenging European auto-industry production volume).

	2019 (million)	2022 (million)
Europe	21.0	15.7
US	15.2	13.1
China	23.4	25.6

Chinese companies are taking aggressive positions with 22-per-cent share of China imports on BEV Europe market with Tesla; Dacia; Polestar, and Hyundai Ioniq (in Korea) vs 1 per cent in 2019. Electrification is opening the way to new makers with disruptive mindset (Tesla-Lucid-Rivian in US; BYD-Nio-Great Wall in China).

Favre presented the PO vision considering these trends: to play a driving role in the mobility transformation and the energy transition, challenging the statu quo and opening new perspectives to drive a new generation of mobility.

About the arrival of Varroc and AMSL, Laurent Favre said that a good relationship with the Indian Varroc management team and listening to everyone drove a good integration of teams on a common project. Now, all teams adhere to the project.

Favre closed the conference by describing his priorities:

- To take care of employee career with the need of more and more expertise; to motivate and keep the resources.
- Importance of software everywhere, especially in lighting.

# ZKW, Rehau in Smart-Front Pact

## LIGHTING NEWS



ZKW and Rehau Automotive, an automotive supplier specialising in plastics, will cooperate toward the integration of modern lighting systems in vehicle front-ends. The goal is to devise 'intelligent' front ends and develop them for series production. The two companies will work together on concepts and pre-development projects with an eye toward offering customers new ways of connecting light; sensors, and electronics on the front of the vehicle.

An electric vehicle doesn't have a radiator, so it doesn't need a radiator grille. That frees up a large area at the front of the vehicle for redesign. The 'seamless intelligent vehicle front' concept merges previously-discrete components into an integral system.

The seamless vehicle front features lights; logo; sensors, and heating elements. Of course, the vehicle front must still play its part in the protection of the occupants in a collision.

ZKW CEO Dr. Wilhelm Steger says, "The aim of the cooperation is to open up additional business potential through the integration of our modern lighting and electronics solutions in vehicle add-on parts. We are very pleased to have Rehau Automotive as a strong partner at our side".

# Driver Assistance News

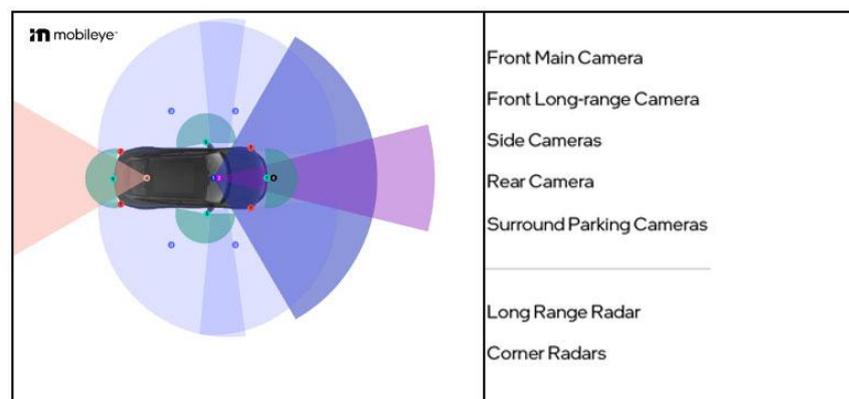
## Porsche, Mobileye Partner for AD Software

DRIVER ASSISTANCE NEWS



Mobileye have announced a strategic collaboration with Porsche to provide Mobileye's SuperVision™ premium ADAS in future Porsche production models; Mobileye CEO Professor Amnon Shashua says, "We are excited to collaborate with Porsche on bringing the next generation of driving technology to customers worldwide. We share Porsche's goal of improving the driving experience through world-class technological innovation".

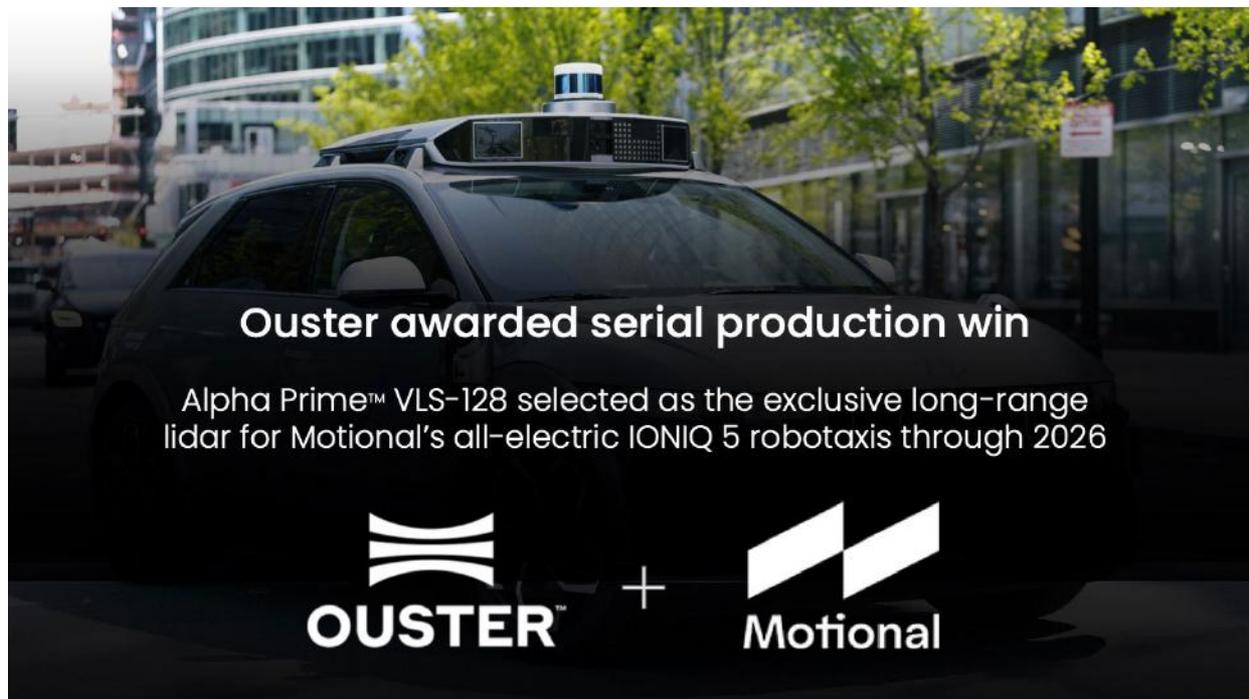
The SuperVision system was designed to enhance safety through the synergetic interaction of driver and vehicle, as well as enhance the driving experience itself, by giving drivers greater freedom to choose how they want to engage with the road, and when they want to let the vehicle handle basic driving tasks.



Future Porsche models will benefit from the system's 11 cameras and radar-based sensing system to deliver supervised hands-free operation for identified use cases. The cloud-connected Road Experience Management maps will provide up-to-date and highly localised intelligence about not just road features like lanes and signals, but how other drivers interact with their surroundings.

# Ouster Win Motional Lidar Supply Bid

DRIVER ASSISTANCE NEWS



Driverless-tech experts Motional have chosen Ouster as their exclusive provider of long-range lidar sensors for their EV robotaxis built up on Hyundai Ioniq 5s. The serial production agreement will see Ouster supply their Alpha Prime VLS-128 sensors through 2026.

A culmination of ten years of lidar development and learning from millions of road miles, the Alpha Prime long-range sensor is specifically designed for autonomous driving and advanced vehicle safety at highway speeds. It provides real-time 3D data up to 0.1-degree vertical and horizontal resolution with up to 300-metre range and 360° surround view.

Motional CTO Laura Major says the Alpha Prime "delivers the long-range, high-performance capabilities we need for our autonomous vehicle. Long-range lidar is an important part of Motional's multi-modal sensor strategy, which includes over 30 sensors carefully integrated into the Ioniq 5 robotaxi design. This sensor suite provides 360-degree vision and enables safe fully driverless operation across diverse driving environments and conditions".

*Founded in 2020 as a joint venture between Hyundai Motor and Aptiv, **Motional** deploy their L<sup>4</sup> AVs for ride-hail and on-demand delivery applications. Motional have already begun implementing Alpha Prime sensors on their Ioniq 5 robotaxis deployed for Motional's commercial operations in Las Vegas and Los Angeles, and for testing operations in Boston; Pittsburgh, and Singapore.*

***Ouster** are a leading global provider of high-resolution scanning and solid-state digital lidar sensors, Velodyne Lidar sensors, and software solutions for the automotive; industrial; robotics, and smart infrastructure industries.*

# General News

## China is Biggest Threat to Europe's Automakers: Study

GENERAL NEWS



BYD's Dolphin compact hatchback

Chinese-built electric vehicles pose the greatest risk to Europe's automakers and could cost them €7bn a year in lost profits by 2030 unless policymakers take action, according to an Allianz Trade report.

Policymakers need to meet the challenge with reciprocal tariffs on cars imported from China; do more to develop EV battery materials and technologies, and also allow Chinese carmakers to build cars in Europe, according to the report published by the unit of German insurer Allianz.

Peugeot CEO Linda Jackson says Chinese EV makers are a growing threat because they are offering better cars than in the past at affordable prices: "For me the biggest danger [for electric vehicles prices] is the Chinese coming in because they are coming with quite competitive prices and with very good vehicles. So what we need to do is make sure that we have the technology and not necessarily trying to get the cheapest car, but get the best value for money". She said recent price cuts by Tesla are adding the pressure faced by the auto industry and lowering the residual value of cars.

While Europe remains comparatively open to imported EVs—Tesla, for instance, accounts for 20 per cent of fully-electric car sales in Europe—the U.S. is "set to be a much tougher market to crack for Chinese vehicles", the report said.

# Almost 1 in 5 New Cars Sold This Year Will Be Electric

## GENERAL NEWS



Eighteen per cent of new cars sold this year will be electric, according to new data from the International Energy Agency (IEA). Automakers are ramping up electric models, driven by government regulations to curb climate change and consumer demand as drivers want EVs over combustion engines.

Over the next 10 to 15 years, automakers will either completely phase out or severely cut production of petrol-powered vehicles. In 2022, more than 10 million electric cars were sold globally, a new record. Sales are surging further this year and will represent a much larger share of the overall car market as the industry continues its transition.

The IEA expect another record to take place this year as the figure reaches 14 million. This growth means EVs' share of the overall car market has risen from around 4 per cent in 2020 to 14 per cent in 2022, and is set to increase to 18 per cent this year, according to IEA forecasts.

Most EVs are sold in China; Europe, and the U.S. China is by far the leader with 60 per cent of global EV sales in 2022. More than half of all EVs on the road globally are in China, with Europe and the U.S. as the second and third largest markets. Both regions increased sales in 2022 by 15 and 55 per cent in 2022, respectively.

Further growth is expected this year as governmental programs are in place to accelerate EV sales—like the Fit for 55 package in the E.U., and the Inflation Reduction Act in the U.S. By 2030, the average share of EVs in total sales across China, the E.U. and the U.S. will rise to about 60 per cent.