Tue, 29 October 2024
Weekly Newsletter

DVN Lighting

NEWSLETTER #877

Editorial

Signalling Road Projection Has To Wait In Europe

During the GRE meeting last week, some major improvements were made to UNECE Regulations for lighting.

The failure detection criteria for microLEDs were made more sensible; no longer must a failure message be given if one of the 25,000 pixels has failed, and new driver assistance projections will be allowed for predicted trajectory with possibility to adapt the shape of the symbol.

But at the same time, the contracting parties to the 1958 Agreement (which enables the UN Regulations) failed to reach agreement to allow signalling road projection for reversing light and direction indicator light functions. So now more investigations must be done to address the points of concern. Most of them related to glare in wet road conditions, and the willingness to have a step-by-step approach for the turn indicator projection with only specific use cases first and then later open it to additional scenarios. GTB, with support from automakers, tier-1 and -2 suppliers, and test houses will have to continue their work to be able to put forth a new proposal at GRE 92 in April 2025.

Meanwhile, signalling projections with a very large scope will be allowed in China from July 2025; the final regulatory text should be released this month.

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

In Depth Lighting Technology

Paris Motorshow Part II: Focus on Lamp Activation

By Paul-Henri Matha

I took time to check lamp activation on a variety of cars, to see if they comply with UN R48 Series 07, the new Series 08 (mandatory for new vehicle types from January 2023 and all types from September 2027), or the newest Series 09 amendments (mandatory for new types from September 2027 and all types from September 2030). Automakers will have to modify their production vehicles by September 2027 to be compliant with 08 and September 2030 to be compliant with 09.

My focus for R48-08 is based on low beam activation and deactivation. It requires a new approach by automakers, because it is now restricted or disallowed to deactivate the low beam manually while driving, or in parking conditions. This was a strong request from regulators, to avoid vehicles driving around at night with their DRLs on, and without any rear signalling functions. It is a requirement with sharper teeth than the analogous regulatory adjustments in Canada we **reported on** when they were new; here are the relevant parts of R48-08:

6.2.7.5. The dipped-beam headlamps shall be switched ON and OFF automatically relative to the ambient light conditions (…) In addition, the following subparagraphs 6.2.7.5.1. apply.

6.2.7.5.1. Irrespective of the requirements of paragraph 6.2.7.5., under conditions requiring the dipped beam headlamps to be switched ON, the dipped-beam headlamps may remain switched OFF or, once automatically switched ON, may be switched OFF manually and remain switched OFF while one or more of the following conditions exist:

(a) The automatic transmission control is in the park position;
(b) The parking brake is in the locked position;
(c) Prior to the vehicle being set in motion for the first time after each manual activation of the device, which starts and/or stops the propulsion system;
(d) The control is designed in such a way that manual deactivation shall not be possible with less than two deliberate actions. The lamps referred to in paragraph 5.11. shall be switched ON,
or
If the vehicle speed does not exceed 15 km/h, the control shall be designed in such a way that manual deactivation shall not be possible with less than two deliberate actions. The lamps referred to in paragraph 5.11. may remain switched OFF provided that, throughout the entire period that these lamps are switched OFF, it is indicated to the driver with an optical and with an acoustic or haptic warning signal.

(e) The front fog lamps are switched ON;

The automatic operation of the dipped-beam headlamps shall be resumed as soon as the conditions in this paragraph no longer exist.

6.2.7.6. Irrespective of the requirements of paragraph 6.2.7.5., it shall always be possible to switch the dipped beam headlamps ON manually.6.2.7.7. The driver shall at all times be able to engage the automatic operation.
6.2.7.8. Notwithstanding the provisions of paragraph 6.2.7.5., in cases where the ambient illuminance is 1,000 lx or more the dipped-beam headlamps may switch ON and OFF automatically relative to other factors such as time or ambient conditions (e.g. time of the day, vehicle location, rain, fog, etc.).

Also I am focusing on the new autolevelling requirements in R48-09:
6.2.6.2.1. In the case where a headlamp levelling device is necessary (…), the device shall be automatic

We can see three compliance strategies from automakers: a traditional stalk with stable fixed-detent positions (no longer acceptable as of September 2027), a new type of selector stalk, such as one with unstable positions, compliant with R48-08, or a hybrid solution with a stalk for high beam and turn indicators while all other functions are moved to the centre stack display or elsewhere. Here's a sample of what I found:

GAC Aion V

Stalk: manual high beam, flash to pass, and turn indicator

Central stack display: manual levelling, activation for low beam, auto, position lamps, rear fog

Hardware is ready for R48-08, but not for R48-09 (automatic levelling). I also note the distance between the two lit DRL surfaces seems to be more than the 75mm limit.

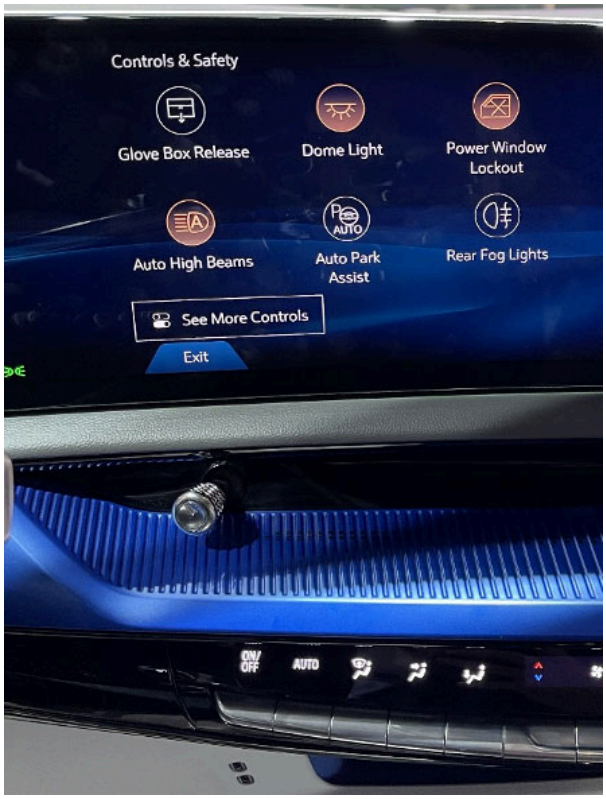
Cadillac Optiq

Stalk: manual high beam, flash to pass, and turn indicator

Central stack display (left area): activation for low beam, auto, position lamps

Central stack display (central): rear fog lights, automatic high beam

Hardware is ready for R48-08; no information about levelling (not found).



BYD Seal

Stalk: manual high beam, flash to pass, turn indicator, low beam, position lamps, auto, rear fog.

Position lamp and 'zero' are in a stable position on the stalk.

Hardware seems noncompliant with R48-08; will need an update or software modification. No information about levelling (not found).

Aito M9

Stalk: manual high beam, flash to pass, and turn indicator

Central stack display: activation for low beam, auto, position lamps, rear fog

Hardware is ready for R48-08. No information about levelling (not found).

Leapmotor C10

Stalk: manual high beam, flash to pass, and turn indicator

Central stack display: activation for low beam, auto, position lamps, rear fog, automatic high beam

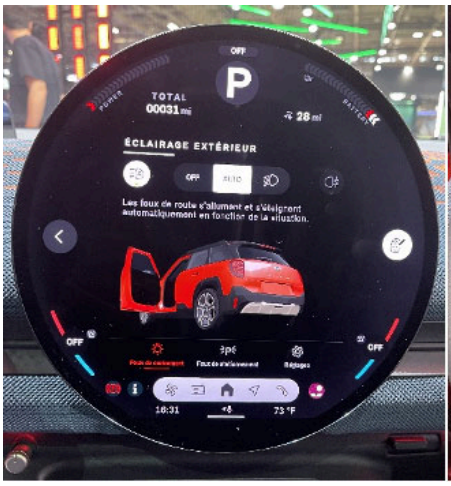
Hardware is ready for R48-08. No information about levelling (not found)

MINI

Stalk: manual high beam, flash to pass, turn indicator, rear fog

Central stack display: activation for low beam, auto, position lamps, automatic high beam, parking lamps

Hardware is ready for R48-08. No information about levelling (not found).



Citroën e-C3

Stalk: manual high beam, flash to pass, turn indicator, rear fog, position lights, low beam, auto with stable position

Hardware seems noncompliant with R48-08; will need an update or software modification. No information about levelling (not found).

Renault 4

Stalk: manual high beam, flash to pass, turn signals, rear fog, position lamps, low beam with unstable position (selector). Confirmation of lamp selection on Driver information display

Hardware is ready for R48-08.

Levelling selector +/-; will need a hardware modification to comply with R48-09.

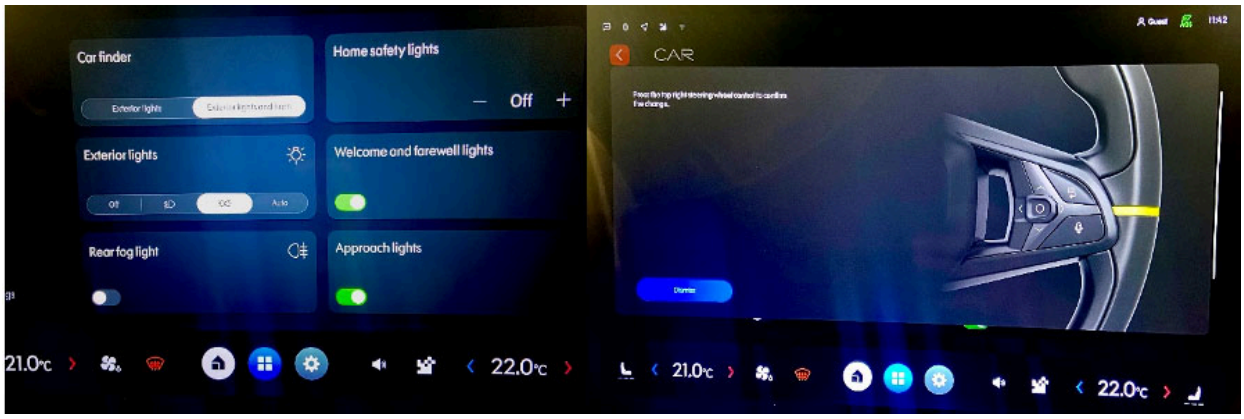
Lynk & Co 02

Stalk: manual high beam, flash to pass, and turn signal

Central stalk display: rear fog, position lamps, low beam, off, auto

Double confirmation on steering wheel

Hardware and Software appear ready for R48-08. No information about levelling (not found).



Dacia Duster

Stalk: manual high beam, flash to pass, turn signal, front and rear fogs, low beam, position lamps, and auto with unstable position

Confirmation of lamp selection on driver information display

Hardware appears ready for R48-08.

Manual levelling is not compliant with R48-09.

Kia EV6

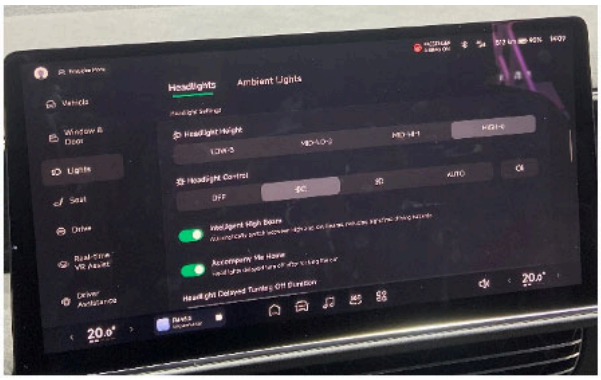
Stalk: manual high beam, flash to pass, turn signal, rear fog, auto high beam. Low beam, position lamps, and auto with stable position.

Confirmation of lamp selection on driver information display.

Hardware seems noncompliant with R48-08; will need an update or software modification.

No information about levelling (not found).

Xpeng G6

Stalk: manual high beam, flash to pass, turn indicator.
Central stack display: rear fog, auto high beam, low beam, position lamps, auto, and off.

Hardware is ready for R48-08.

Manual levelling noncompliant with R48-09 (beam aiming selectable on the Central Stack display)

Audi A6 e-tron

Stalk: manual high beam, flash to pass, turn indicator, automatic high beam activation
Side switch in the left door : bad weather light, rear fog, common button selection for low beam, position lamps, auto, and off. Beam selection display on the left area of the Driver Information display behind steering wheel

Hardware appears ready for R48-08.

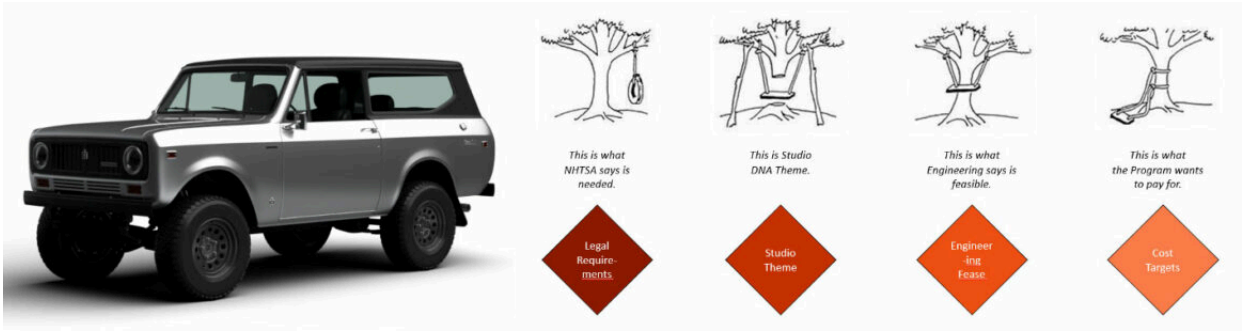
No information about levelling (not found).


Lighting News

Scout Traveler SUV & Terra Pickup

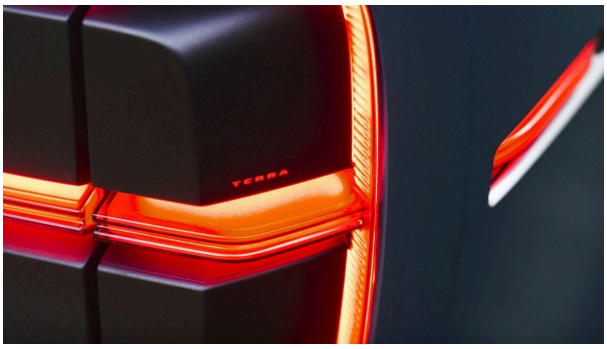
LIGHTING NEWS

We know now a bit more details of New Scout Motors' new pickup. At the DVN event near Detroit last June, Terrence Wilson was not allowed to say too much about it, except for his design challenges to solve.



Now, the Scout is back after 44 years. The brand is showing off two new production-intent concepts, the Traveler SUV and the Terra truck, both drawing inspiration from the original Scout vehicles built by International Harvester between 1961 and 1980.
The Harvester is an optional extended-range energy system, a gas-powered generator that increases the range to more than 500 miles.
The entry-level Traveler will start in the low $50,000 range with incentives, while the Terra Truck will have a $51,500 price tag, with retail prices for both starting under $60,000

Production is slated to start in 2027. The lamps look great—well done, Terrence, Luciano, and the whole lighting team. There are front and rear lit logos, nice side marker lamp integration in body panels, a 4-dot low beam and high beam, full-width rear light band are prominent design elements. Additional front and rear auxiliary lamps have been added to the car as a reminder of the previous generation of Scouts.



Marelli Matrix Lights, Lit Grille on Changan CS75 Plus

LIGHTING NEWS

Matrix headlamps, an illuminated grille, innovative taillights, and lit front and rear logos: the entire exterior lighting system for the Changan CS75 Plus, all from Marelli, with engineering and manufacturing in China.

The front and rear lighting units match perfectly. They provide illuminated automaker logos and span the entire width of the car. In the front, four rows of light strips in the main-light area are connected by a continuous strip in the grille. The space-saving, third-generation bifunctional matrix module not only improves the luminance using LEDs of greater intensity, but also features a new cooling system that can reduce energy consumption by 18 per cent.

The tail lamp extends across the entire width of the car. The up and down staggered lighting functions emphasize the visual impact to improve brand recognition. At the same time, the variety of animation modes can create different scenarios to highlight the personality of the lamp and the car.

General News

Forvia Q3-24 Numbers Announced

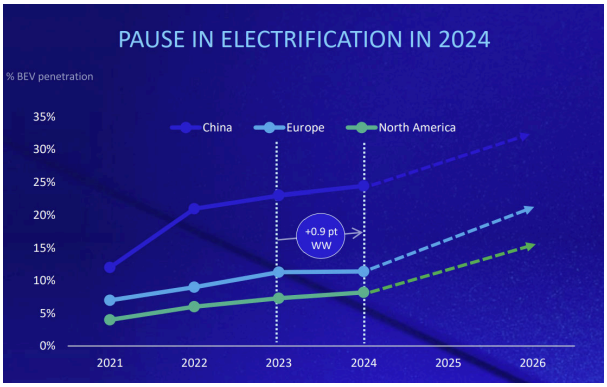
GENERAL NEWS

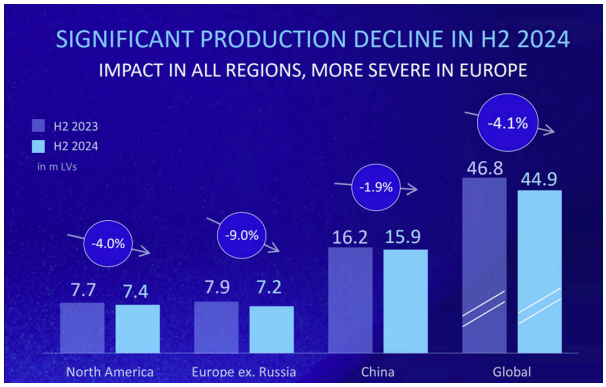
Forvia's third-quarter 2024 sales outperformed worldwide automotive production; the supplier's total sales for Q3-24 came in at €6,357m, down 2.6 per cent compared with the same period in 2023.

in €m	Q3 2023	*Currency effect*	*Organic growth*	*Scope effect*	Q3 2024	Reported change
Group sales	**6,528**	*-105*	*-28*	*-39*	**6,357**	**-2.6%**
% of last year's sales		*-1.6%*	*-0.4%*	*-0.6%*		
Worldwide auto. prod.* (m units)	**22.6**		-4.6%		**21.6**	
Outperformance (bps)			***420***			

** Source: S&P Global Mobility October 2024*

Forvia mentioned a pause in electrification and significant production decline in H2 2024, mainly in Europe where it was down 9 per cent.





The lighting division produced 15 per cent of the group consolidated sales in the period, with a 6-per-cent revenue growth to €945m.

In Europe, sales grew at around 8 per cent in a market down by around 7 per cent, driven by strong activity with VW and Nissan-Mitsubishi.

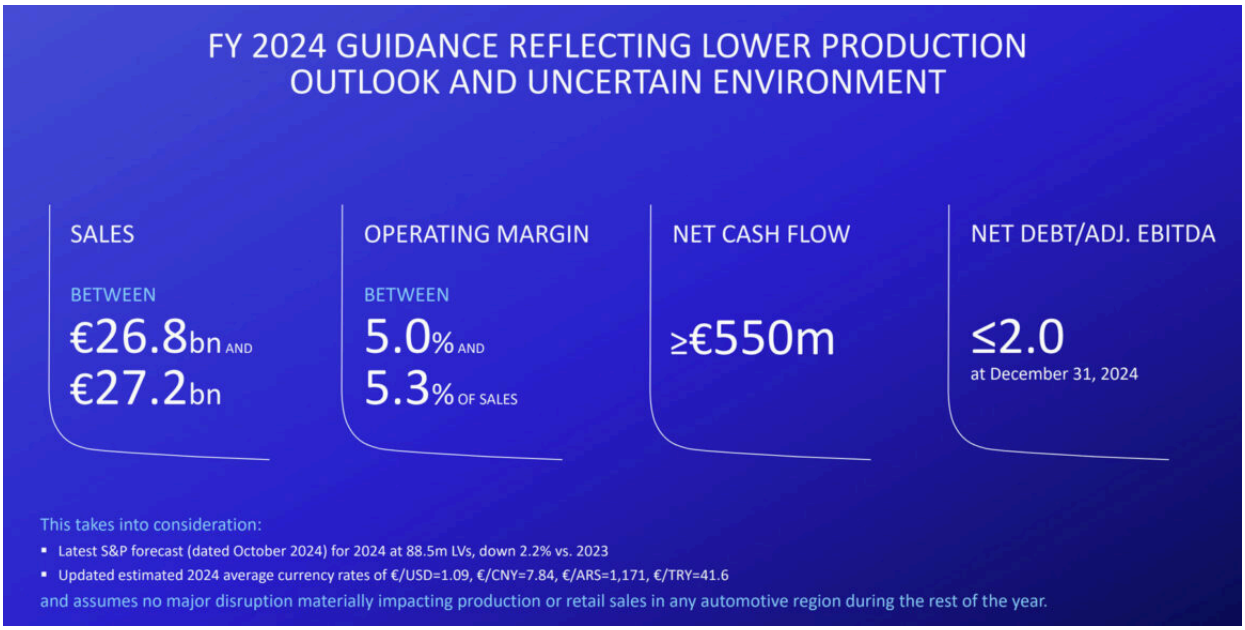
In North America, sales were down by 9 per cent in a market down by 5 per cent, penalized by ends of production and delayed SOPs.

In China, end of production of a large series with an international automaker was not compensated by growing activity with Geely and business ramp-up with new Chinese customers.

Reported growth stood at 5.1 per cent, on strength of the consolidation by Forvia Hella of HBBL, a joint venture that was previously accounted by the equity method.

By countries, EMEA provides 45 per cent of group consolidated sales, followed by North America (27 per cent) and Asia (28 per cent).

Forvia expect overall 2024 Sales of between €26.8bn and €27.2bn, operating margin between 5.0 and 5.3 per cent of sales, net cashflow (NCF) ≥ €550m, net debt/adjusted EBITDA ratio ≤ 2.0× at year's end.



Forvia are assuming stable global automotive production in 2025 versus 2024, including growth in Asia offset by declines in Europe.

Valeo Q3-24 Figures Published

GENERAL NEWS

Valeo's total sales for third-quarter 2024 were €4,967m, down 5 per cent compared with the same period in 2023. On a like-for-like basis, sales fell by 2 per cent.

Sales of 4,967 million euros in third-quarter 2024, down 2% like for like

Sales (in millions of euros)	As a % of sales	Q3 2024	Q3 2023	Change	FX	Scope	LFL* change
Original equipment	84%	4,197	4,433	-5%	-1%	-2%	-2%
Aftermarket	11%	538	569	-5%	-4%	-4%	+3%
Miscellaneous	5%	232	222	+5%	—%	+2%	+2%
Total	**100%**	**4,967**	**5,224**	**-5%**	**-2%**	**-2%**	**-2%**

** Like for like [2].*

S&P Global Mobility's automotive production estimates are down 5 per cent on the third quarter of 2023. This decrease reflects both the postponement of production launches by customers and the impact on demand of uncertainty surrounding the adoption of electric vehicles.

Changes in Group structure took a 1.6-per-cent toll, mainly linked to the sale of the Thermal Commercial Vehicles activity towards the end of the first half of the year.

Exchange rate changes took another 1.8-per-cent shave off the sales figure, primarily due to the appreciation of the euro against the Japanese yen and the South Korean won.

Original-equipment sales were down 2 per cent like for like, outperforming automotive production by 3 percentage points.

Aftermarket sales rose by 3 per cent (like-for-like) compared with the prior-year period, fuelled by the increased number and age of vehicles on the road, and an increasingly attractive offering of value-added products. 'Miscellaneous' sales (tooling and customer contributions to R&D) increased by 2 per cent like for like

By countries, 46 per cent of group consolidated sales are in EMEA; followed by Asia, the Middle East, and Oceania (32 per cent) and America (22 per cent)

The company's lighting division revenue was €1.270m in Q3-24, compared to €1.280m in Q3-23. The lighting division outperformed automotive production by 4

percentage points, driven by a significant number of production launches in Europe and China, including for several Chinese automakers in electrification. The division's performance was also fuelled by recent electrification production launches for a North American automaker. In Japan, the division's activity took a hit from production stoppages at several Japanese automakers, linked in part to the typhoon at the end of August.

Valeo are maintaining their margin and free cashflow guidance with margins significantly higher in the second half of the year versus the first half thanks to the rigorous management of activities and the implementation of cost adjustment measures amidst adverse market conditions. Valeo have adjusted their sales objective to around €21.3bn and operating margin between 4 and 5.

Their outlook for 2025 shows a worsening economic environment and significant uncertainty surrounding production volumes at Valeo’s customers, due in particular to a slowdown in the Chinese economy, to the application of new environmental standards in Europe, China, and North America, and to delays in customer programs and their effects on inventory management. Valeo will publish 2025 guidance adapted to these new market conditions when they publish their 2024 results. For 2025, Valeo remain focused on generating free cashflow and reducing their debt.

CDN People Awards 2024

GENERAL NEWS

Car Design News revealed their nominations for the 2024 People Awards. Now in its third year after a blockbuster first round in 2022, the People Awards celebrate the individuals and teams behind all facets of design.

More than 200 entries came in this year; applicants ranged from solo designers to entire teams, with everyone from established design directors to undiscovered talent spotlighted from all over the world.

A panel of experienced car designers will gather in person for live judging at the Nissan Design Europe studio in Paddington, London, to choose the winners for each category. As with past editions, judges will be unable to vote for themselves or another brand within their group, meaning final votes are entirely unbiased and given on merit alone.

What is of interest for our lighting community is the best team awards, given to Volvo Cars' team last year.

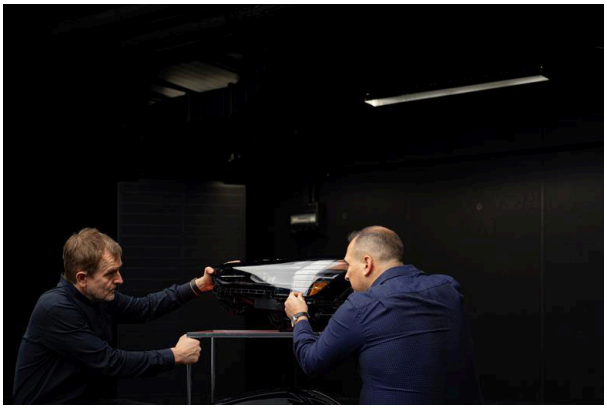
This year, five teams will be in competition for the best lighting design team, sponsored by Swarovski Mobility

- Zeekr Design Technology & Innovation Team
- Verne Design Team
- Mercedes-Benz Exterior Detail Design & Light Engineering Teams
- Audi Light Design Team
- Hyundai Lighting Design Team

It is quite interesting to mention also that Marelli are part of the best supplier award team.

Best Supplier Award

- Kolb Design Technology
- Harman Automotive
- Envisage Group
- Ultrafabrics Automotive Team
- Marelli Automotive Lighting Innovation Team



The Automotive Ecosystem: Looking to the Future

GENERAL NEWS

By Philippe Aumont, DVN-I General editor

The Paris Automotive Summit was an important pillar of the Paris Mondial, with global leaders of the sector, innovative players and public officials sharing their vision of the future challenges of the automotive sector and the future of sustainable mobility.

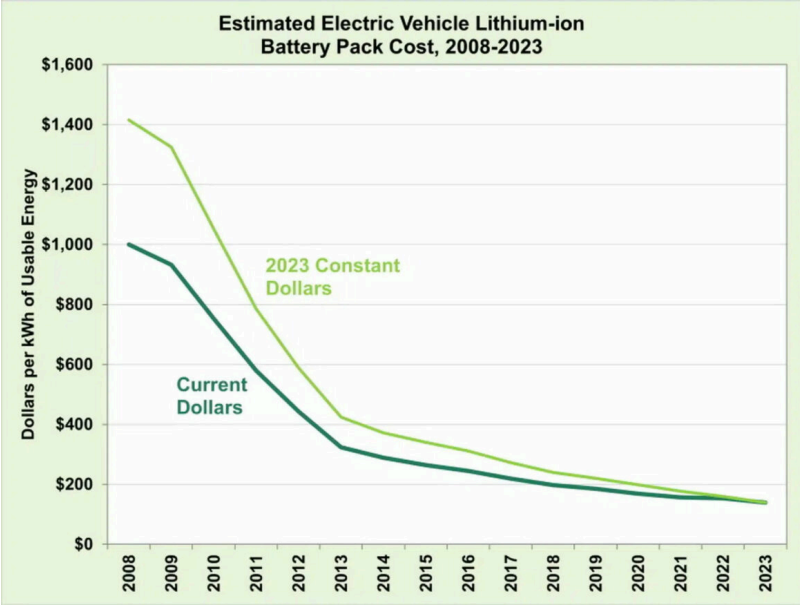
Left to Right, Top to Bottom: Stellantis CEO Carlos Tavares · Renault CEO Luca de Meo · BMW CEO Oliver Zipse · TotalEnergies CEO Patrick Pouyanné · French Automotive Platform rep Luc Chatel · Alliance for Automotive Innovation CEO John Bozzella

The conference started with a speech from Luc Chatel about the EU auto industry's crisis. He said, "The Mondial de l'Auto embodies the alliance between passion and reason. However, we are now faced with reality: this is a historic choice aimed at

decarbonizing the auto industry. The challenge is to offer solutions that are affordable to as many people as possible. This is a colossal and devastating challenge for the industry". What we see right now is that customers are not ready for EVs, and we are facing two different approaches, customer versus legislator. We have seen a EV sales drop by 15 per cent in Europe in 2024

Luca de Meo called for coöperation with Chinese automakers. He mentioned BYD and Xiaomi as examples of Chinese success in the electric car industry. Renault is already working with Geely to develop combustion and hybrid powertrains, illustrating a 'coopetition' strategy, with the new automotive digital ecosystem. He emphasized the performance of EVs, which is better to drive than any other technology (though we think this might depend on how 'better' is defined, and by whom). EVs generate 70 per cent less CO_2 than combustion engines overall.

Also, battery price is not similar to semiconductor industry. Moore's Law is not applicable for this type of industry.



From U.S. Department of Energy (DOE)

Oliver Zipse said Europe must cancel its plan to ban new combustion-engine cars from 2035 to reduce reliance on China's battery supply chain: "A correction to the 100-per-cent BEV target for 2035 as part of an overall reduction in CO_2 emissions would also allow European OEMs to be less dependent on China for batteries…to stay on course for success, it is essential to follow a strictly technology-agnostic path within the policy framework". He believes we must demonstrate technological neutrality and consider that all technologies can contribute to reducing CO_2: efficient combustion engines, PHEVs, hybrids, and BEVs.

He said that with 250 billion vehicles in Europe, it would be more efficient to power them with synthetic fuels such as e-fuels. He also mentioned hydrogen, which he described as an emerging technology and that it was necessary to support both the

production of hydrogen and the installation of multi-energy stations. The 100-per-cent EV objective, he said, is "impossible".

Also, we need to enlarge the scope including customer behaviour, charging infrastructure, raw material supply and geopolitical risk. Everybody must collaborate and it is still time to change the EU strategy with additional solutions.

Valeo President Christophe Périllat presented the stakes and challenges of the automobile industry, which he said is undergoing its biggest transformation since the invention of the automobile. Mobility is shifting rapidly more and more to electric-powered vehicles. He shared insights into how this historic transformation is an important opportunity for the automotive industry to work together to fight global warming and the challenges that lie ahead.

He emphasized the importance of the shift to SDV, a promise for a car which can evolves along its lifecycle. "The software-defined vehicle is the promise of a vehicle that can be updated, upgraded and customized, throughout its entire life cycle. You'll be able to add or remove functions according to your needs. Just like your smartphone". He highlighted how SDV will forever change our relationship with the car, reminding us that this technological revolution requires a collective shift involving an entire ecosystem.

Valeo's interesting approach combines software updates and also hardware updates (like additional memory sticks) as well as cybersecurity management. Automakers cannot do this activity alone; they need collaboration with OS, middleware, cloud, and cybersecurity expert companies (examples Valeo – Renault – Google – Orange, or BMW – Valeo – Qualcomm for main chassis controller).

SDVs will change the electric/electronic architecture and content of a car, from 50 to 150 ECUs (size of a smart phone) to five controllers (size of a laptop), related wiring reduction. The central unit will be independent from a car program.

Patrick Pouyanné criticized synthetic fuels as too expensive to produce. He explained how these synthetic fuels are produced: from biogenic CO_2 (not anthropogenic) and the hydrogen molecule that is not found naturally on Earth and that must be produced with electrons and water. "It is more complicated to make than gasoline and it costs more," he said. "A Ferrari owner could afford this fuel, not other consumers". Furthermore, Mr. Pouyanné was not more positive for hydrogen as a credible option.

He said other fuels, like ethanol or HVO (a slightly cleaner Diesel) are possible. He considers that his stations will still serve gasoline until 2050 and probably much longer

for trucks, and that Africa is not about to adopt EVs.

'Les Echos' Editor David Barroux + Orange CEO Christel Heydemann

Orange, the telecom company, are deeply involved in automotive usage transformation. Their expertise in digitalization, integration, connectivity, storage, and security now applies directly to the automotive sector. 5G, AI, and IoT are key to creating safer, smarter, and more sustainable cars and they work with many car manufacturers on this. CEO Christel Heydemann stated that innovation comes with responsibility, and cybersecurity of connected vehicles is a big part of it. Within Software République, Orange Cyberdefense partner with Renault Group and Thales to develop an AI-driven 'detect & respond' real-time solution against cyberattack.

John Bozzella stated that safety and decarbonization are the main challenges of the industry. Decarbonization needs, as he said, many technologies. About EVs, he proposes to change the perspective, saying there's no range anxiety, there's only charging anxiety! He also stated that the US is divided in two worlds, with California and some other states (35 per cent) being EV-only for the future.

Carlos Tavares said, "We need to raise our game. Every second we spend pausing is time we lose to improve". For example, any delay to the EU emissions targets will only mean that European automakers will fall further behind their rivals from China.

He explained that the industry is fighting to survive. Criticism of the decision to ban cars with combustion engines in 2035 is starting up again, even though all European manufacturers are preparing for it. Nothing can force a customer to buy a vehicle with a new technology that is little understood and poorly promoted. However, for a driver who does an average of 34 km per day, the autonomy of any electric vehicle is largely

sufficient. And for long journeys, fast charging stations are now available. In this curious game of poker, manufacturers know that they can no longer back down and that the shift to EVs is desirable and inevitable. The battle of the sale price remains to be won. It is underway on the technical level (gasoline/electric parity) but volumes are still needed, and for that, affordable small European cars. Stellantis offers this type of vehicle with Leapmotors, Chinese to the core even if they are assembled in Poland.

He gave an interesting perspective with Chinese automakers' market share per market, which is still limited: China, 56 per cent; India & Asia Pacific, 4 per cent; Africa, 11 per cent; South America, 10 per cent; North America, 0.7 per cent, and Europe, 2.6 per cent.

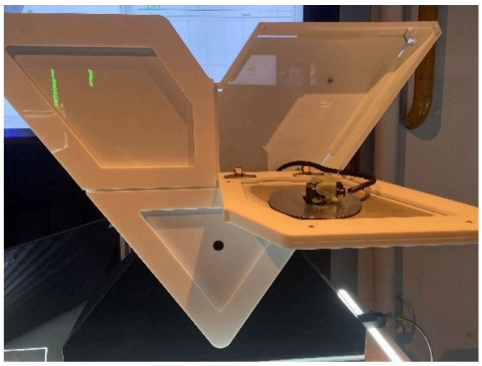
Valeo @ Paris Motorshow: the Valeo Mobility House

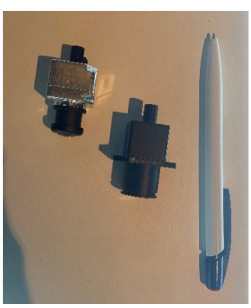
GENERAL NEWS

Valeo had a booth at the Paris Motorshow, and a complete product exhibition in the Valeo Mobility House installed just outside.

Along the different halls and garage (with demo cars), all activities of Valeo were on display—including lighting, ADAS, electrification, and interior experience.

Reflecting the software-defined vehicle architecture trend, many solutions were visible such as Valeo platform bundling IVI (in-vehicle infotainment), driving assistance, and parking assistance on a single SoC platform. Also, lighting for UX, to improve UX in any situation, to increase safety while enhancing comfort, with adjustable software to occupant profiles with animated and customized interior experience.



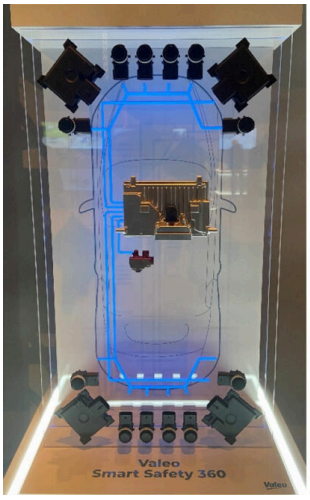


As a lighting specialist, I am interested in ADAS without being an expert. Anyhow I found interesting technologies.

Invisible Ultrasonic sensor for parking was on display; no need to see this sensor any longer. Everybody who has done sensor integration in bumpers is aware of the difficult integration (flush or not, body-colour cover, etc). With Valeo technology the ultrasonic sensor can be invisible behind the bumper skin.

Another interesting innovation is the thermal camera, in partnership with Teledyne Flir. This is one of the solutions to be compliant with FMVSS AEB regulation that will be mandatory in 2029. Compared to an infrared camera, no need to have extra IR light source in headlamp for example. Integration can be done in the roof, behind windshield like a classical camera, or in the grille.

Valeo also showed their complete sensors package for 360-degree functions including radars, camera, ultrasonics, and infrared, all in one.



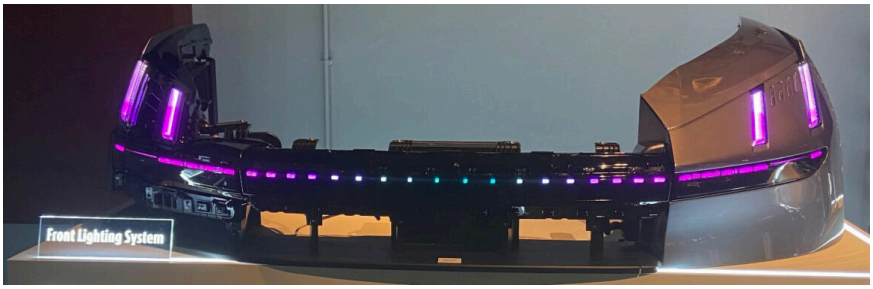
Another Valeo ADAS presentation was the imaging radar, in collaboration with Mobileye.

Always, as a lighting specialist, I am also interested in SDV architecture, and high-power computing units. Valeo presented an interesting approach, with possibility to not only update the software, but also the hardware with accessible PCBs. Valeo are using expertise from their climate and lighting business units to design ECUs, including passive cooling (aluminium heat sinks) and also active cooling (fan or water cooling).

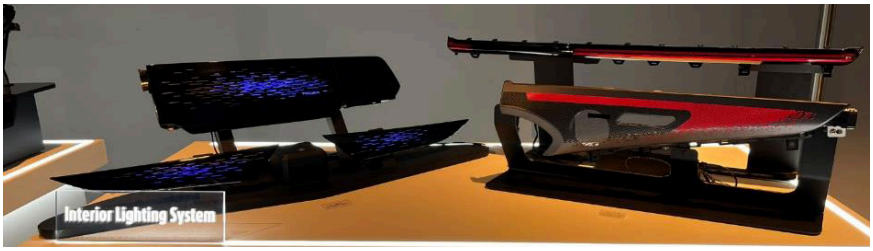
Valeo's lighting focus covers four domains: Lit logos, mainly for US and Chinese markets:

Front displays (Zeekr 007 shown here):

RGB exterior applications (Lynk & Co Z10 shown):



…and interior lighting:



A demo car was presented with an interior lighting experience featuring static ambient and backlight systems for brand signature, and dynamic ambient lighting.