Tue, 17 May 2022
Weekly Newsletter

DVN
Lighting & ADAS

NEWSLETTER #751

Editorial

Regulation Lags Tech Progress, But Encouraging Signs From Geneva

This week we publish a report from GTB, on the recent GRE meeting held as a hybrid session in Geneva. As you will read, it was a fruitful GRE session making good progress on the hot topics, including signalisation of vehicles driving in autonomous mode and the activation of signalling lamps in the parked condition; the so-called “welcome light”. These discussions are encouraging as they are the start of formal considerations relating to the regulation of the new lighting innovations. As these discussions are taking place at GRE, (the working party on lighting and light signalling of the UN World Forum for Harmonisation of Vehicle Regulations) this is the most efficient route to the development of worldwide harmonised technical requirements for the new functions.

It is also encouraging that the barriers to innovation, caused by the long process of updating the Chinese GB standards, are being addressed in the Chinese 14th five-year plan, but more work is required. However, regarding the USA, it is not encouraging that the gap between FMVSS 108 and the UN technical requirements is widening and leaving manufacturers with the uncertainly of whether these new technologies can be legally installed on their vehicles for the US market. Harmonisation becomes more and more distant from reality and simply a dream!

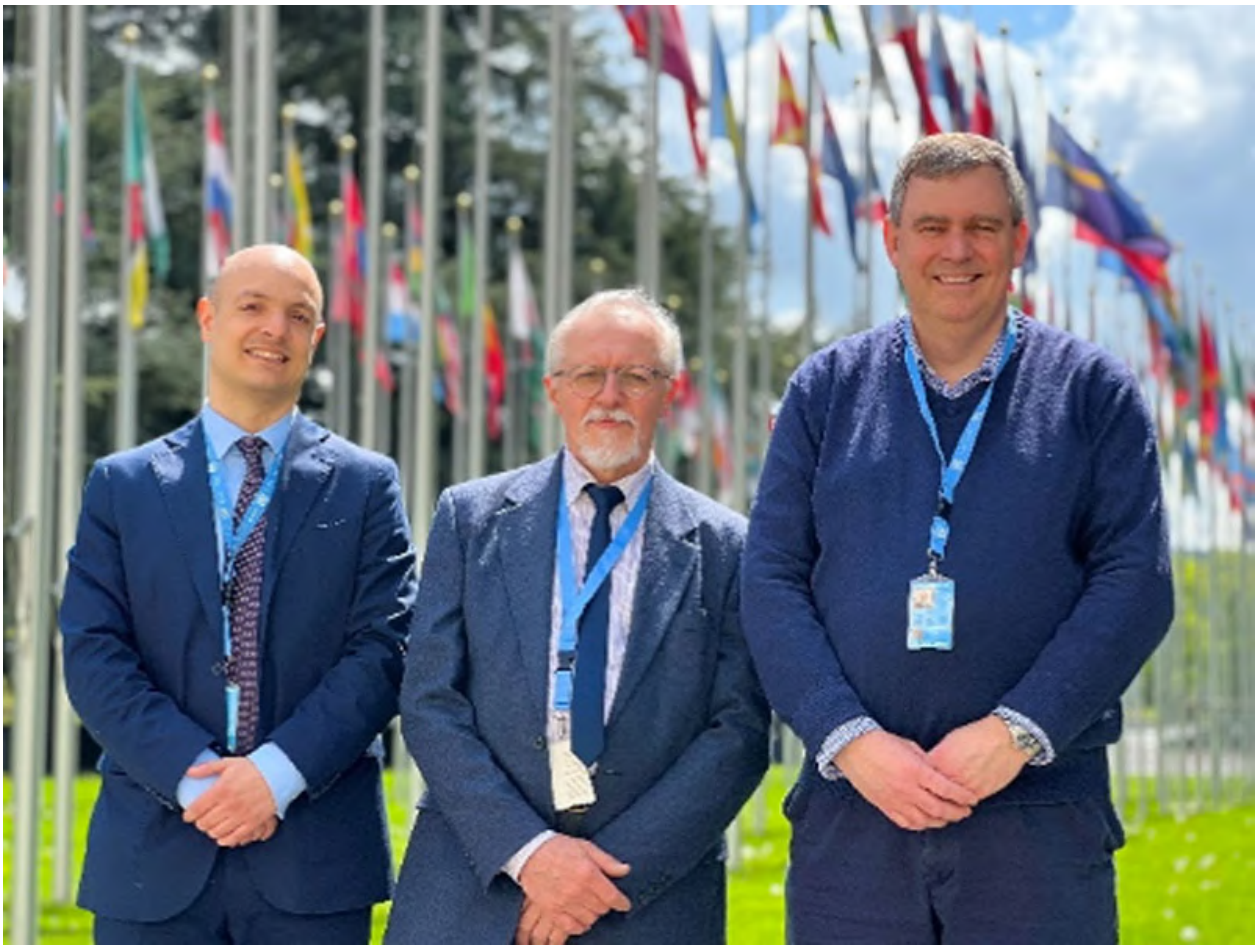
Although I am now retired from my activities in our wonderful worldwide lighting community, I still believe that harmonisation must be the answer, if we want to remove regulatory barriers to innovation. I will be interested to see how the discussion develops at the forthcoming DVN USA workshop. For me, the message is clear; we need NHTSA to actively participate in GRE and to commit to following the example of Korea, India, China, and many other nations, by routinely updating FMVSS 108 in line with the outcomes of the work in GRE.

The regulatory session at the forthcoming US workshop will be an opportunity to debate this issue with leading experts, to try to understand what industry really wants in terms of harmonised regulation and how it can be achieved.

GEOFF DRAPER
DVN SENIOR REGULATORY ADVISOR

In Depth Lighting Technology

86th GRE Session: First In-Person Since 2019 Special to DVN by Valter Genone



DAVIDE PUGLISI, GTB SECRETARY-GENERAL (L)
VALTER GENONE, GTB PRESIDENT
BART TERBURG, GTB VICE PRESIDENT (R)

The GTB Administrative Committee met in person in Geneva during the 86th GRE session, for the first time since the election of the new GTB President, Mr. Valter Genone.

The 86th GRE session, held in Geneva in hybrid mode from 26 to 29 April 2022, was attended by about 30 people in person and another 60 people online. Despite the modest participation in person, this GRE session represented an important milestone because it was the first with participants in person since the outbreak of the Covid pandemic. This is an important step in the right direction!

The main results of the session are:

- Extension of the IWG SLR mandate until the end of 2025, to complete the Stage 2 / Step 2 simplification, focussed on the lighting installation regulations (UN Regulations 48, 53, 74 and 86).

- Extensive exchange on the latest status of discussions about the need for signalisation of vehicles driving in autonomous mode; at present it is still not clear whether a signal

would be needed and, if so, whether it should be visual, audible~~,~~ or both. To this end, at the November WP29 session some indications should be provided by GRVA. At the March WP1 session, a position paper from the International Federation of Pedestrians (IFP), criticised the introduction of optical or audible signals indicating AVs' intended actions to pedestrians. In the same paper, the IFP did not oppose signals indicating the status of the vehicle—whether the autonomous mode is on or not—as long as pedestrians are not expected to change their behaviour in the presence of this signal.

- The GRE Task Force on Autonomous Vehicle Signalling Requirements (AVSR) will hold a kick-off meeting on 15 June 2022 on the topic of fitness-screening UN Regulation № 48 about its suitability for ADS level 3 and below. The meeting will be held in conjunction with the next GTB plenary session in Stockholm.

- About autonomous vehicles, the secretary of WP1 (dealing with road traffic safety) announced the preparation of a specific legal instrument—a new convention or an addendum to the existing Vienna Convention—dedicated to autonomous vehicle circulation.

- Adoption of a CLCCR (International Association of the Body and Trailer Building Industry) proposal for amendment to UN Regulation № 48, supported by OICA, for the optional installation of manoeuvring lamps on trailers. The proposal will be presented to the November WP29 session. A further development of the proposal to allow for additional manoeuvring lamps in relation to the vehicle length will be discussed at the GRE 87th session in October.

- Postponement of the discussion on the OICA proposal of amendment to UN Regulation № 48 to allow the use of direction indicator lamps, flashing at a specific frequency, to indicate the presence of an unattended child in the vehicle; the discussion will be resumed at a future meeting, based on WP29 indications for the coordination of works among the different involved GRs.

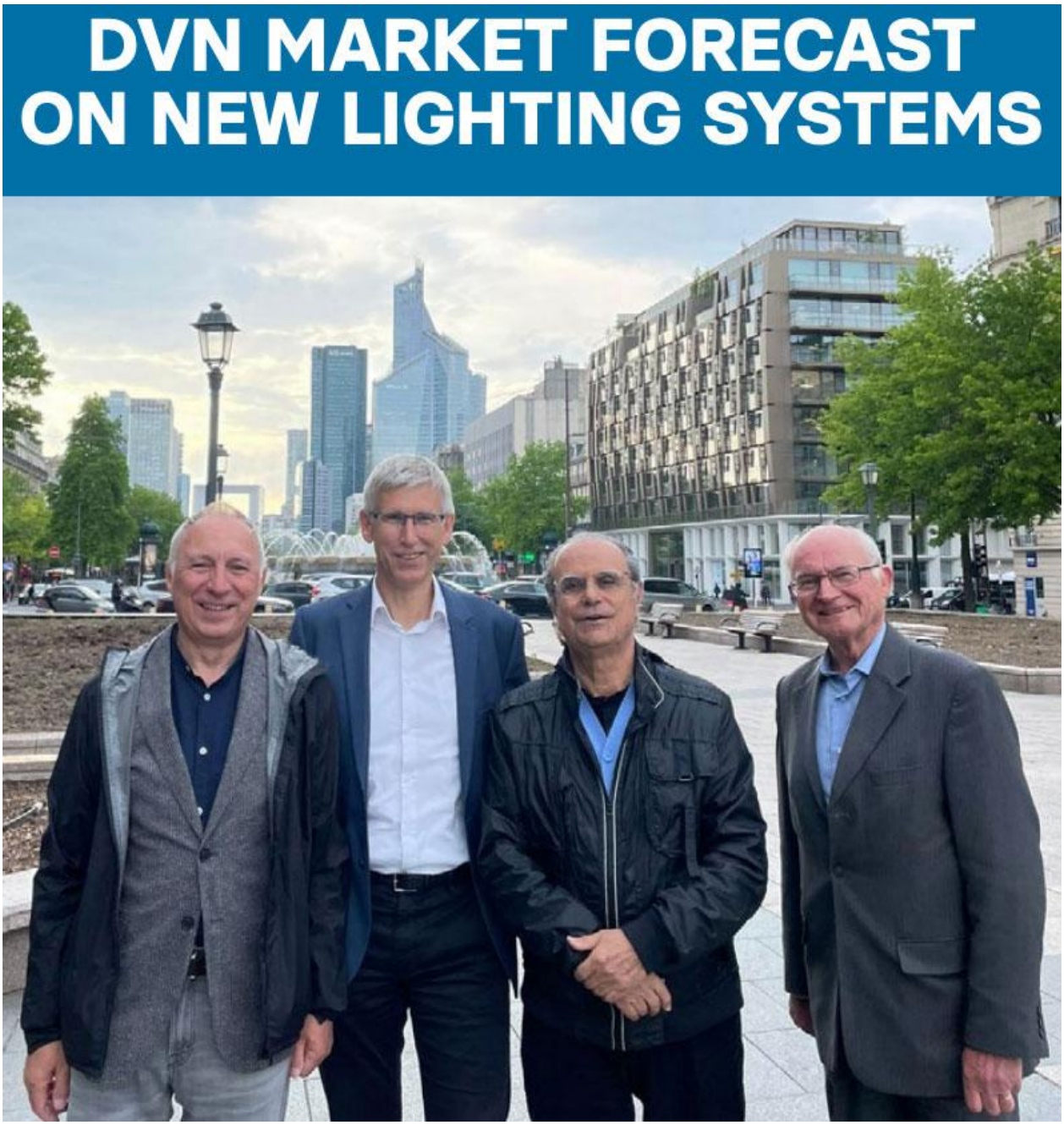
- The GRE Special Interest Group on "park condition and answer back signal" is still working to regulate the two associated items of additional light signalling functions used when the vehicle is parked and of signals activated and deactivated as an answer to inputs external to the vehicle (for example, from the vehicle remote key). They have announced the submission, for the 87th GRE session in October, of a first proposal of amendment to UN Regulation № 48 related to the additional lamps/functions used on parked vehicles, while a further proposal related to the "answer back signals" will be prepared for a future GRE session.

- Discussion on the possible problems linked to the use of the Unique Identifier (UI) in replacement of the traditional type approval markings on the lamps; since the access to the type approval documentation identified by the UI is limited, it has been proposed to make publicly available a summary document providing the necessary information up to now included in the markings on the lamps. A draft format for this document has been proposed; it will be discussed during the next IWG SLR sessions.

Lighting News

5th DVN Study Coming Soon!

LIGHTING NEWS



AUTHORS L-R: W. HUHN; G. BAHNMUELLER; H. FRATTY, J-P RAVIER

At the end of next month on Thursday 30 June, DVN will release our 5th major Study, **DVN Market Forecast on New Lighting Systems and Skills to Succeed**. For the first time, a DVN study gives a view to the future of the vehicle lighting market in numbers and figures based on market data, and many interviews with automakers; tier-1 and -2 suppliers; scientific institutes, and of course the in-house expertise of the DVN team.

This new DVN Study presents a market prognosis about the new components and functions coming in the foreseeable future, particularly the new front ends including lighted grilles/logos; 360° projection; display communication, and new technologies like over-the-air updates. It describes the figures and prospects of the examined technologies, based on market trends like the growing success of EVs; new design philosophies, and technical improvements. Design trends and ecosystem changes like over the air updates and new hardware-software architectures are included, as well.

This is an independent market research and forecast built with dependable input from numerous reliable sources. You'll find it a well-researched outlook on revenue and volume for new lighting elements and functions; a sturdy foundation to help you make informed decisions on investments and distribution of focus and resources. It is a must-have for optimising the business plan of all tier-1 and -2 companies, while automakers will get a view of the market from a thoughtful external perspective.

Plastic Omnium's Long-Term Strategy

LIGHTING NEWS

Plastic Omnium CEO Laurent Favre says his company's strategic plan is built on two pillars:

- **Reinforcing their leadership in existing products** by increasing content and value per vehicle, and by capitalising on the complementarity of their activities to develop a new, unique integrated exterior systems product range; and
- **Targeted diversification in accord with market changes**, moving into business areas promising strong synergies with PO's existing activities: lighting; battery systems and power electronics; software, and ADAS. In 2021, PO recorded revenue of €8bn, and employed 30,000 people in 137 factories and 31 R&D centres in 25 countries. Favre says the goal is to achieve economic revenue more than €15 billion in 2030.

With revenue of €1bn in 2021; 11 plants worldwide, and 7,000 employees, the Group's future lighting business will offer a complete product range with a well-balanced geographical footprint. They're targeting economic revenue of €1.5 billion by 2027.
P.H. Desportes will be the president and CEO of the lighting activity.

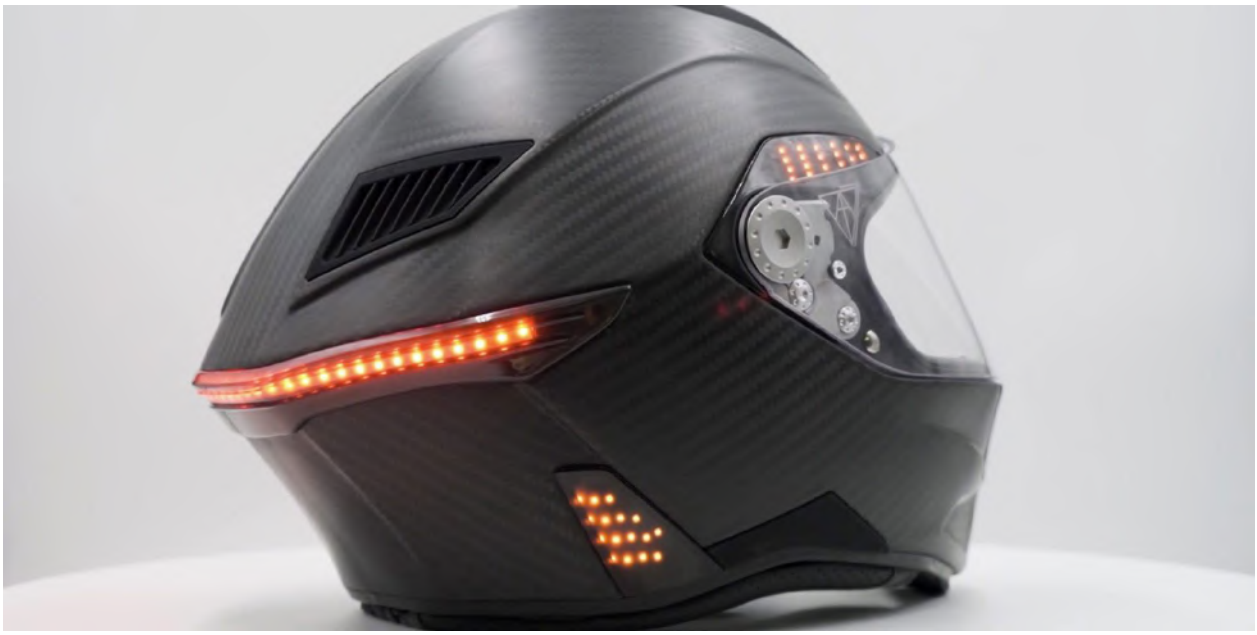
PO's modules (HBPO) business is the world leader in front-end modules, accounting for 27 per cent of the company's economic revenue in 2021—an 18 per cent market share and 31 plants in 11 countries. HBPO forecast a significant rise in sales thanks to the development of new modules relating to the growth in electrification.

By the end of this year, PO will have 37,500 employees at 147 plants and 47 R&D centres in 25 countries. Organised into five business lines including the forthcoming new lighting business, they're predicting economic revenue of around €11bn in 2025.

See the link to the video concerning the Capital Market Day.

Motorcycle Helmet Has Synchro Signals

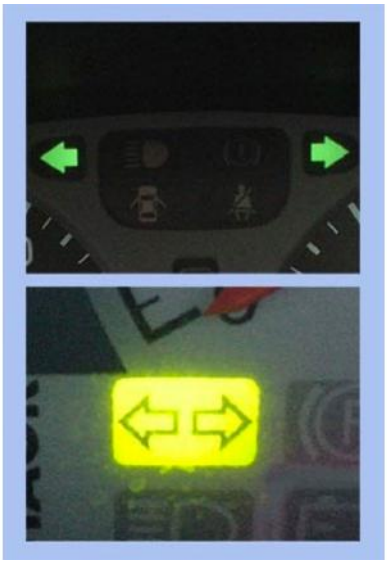
LIGHTING NEWS



The new X1 LED Speed & Light motorcycle helmet from Vata7 has inbuilt LED brake lights, front and rear position lights, and front and rear turn signals. The helmet's lights operate in perfect synchrony with the bike's lights, creating high-level repeaters for all crucial light-signalling functions. A smartphone app controls the pairing of the helmet with the bike, chooses various lighting modes, and can also be used to switch off the helmet's rear lights (so the ones on the driver's helmet won't glare in the face of the passenger behind) or its front lights (so the passenger's front signals don't create distracting reflections for the driver). An **online video** provides the show-and-tell. The helmet is DOT and Snell certified as well as ECE-homologated, for legal on-road use in most of the world's countries. Vata7 also produce backpacks and other motorcycle gear with similar synchronised-signals technology.

Lighting-Related Recall Roundup

LIGHTING NEWS



2022 Jeep Grand Cherokees are being recalled in Canada and US, because their onboard software is improperly programmed: no outage indication is provided in the event of a turn signal failure, as required by FMVSS 108 on both sides of the Canada-US border. Owners of the affected vehicles will be invited early next month to bring their vehicles to a dealer for the body control module to be reflashed with correct firmware.

Jeep manufacturer Stellantis learned of the fault when the assembly plant where the Grand Cherokees are built sounded the alarm. The issue has been under investigation since March, and blame was eventually placed on supplier Continental Teves. All the Jeeps to be recalled were built on 26 January of this year.

FMVSS 108 requires outage indication—a markedly faster or slower flash rate, or no flashing at all—for turn signal failures, but there's no such requirement for stop (brake) light failures. That's because of a historical accident of technological evolution: when the requirement was first written many decades ago, almost all vehicles in North America used combination stop-turn signal lights. A filament failure would take out both functions, and since all vehicles used load-sensitive thermal turn signal flashers, it automatically gave an outage indication; the reduced load caused by the dead bulb dramatically changed the flash rate. That's the requirement that was eventually written into FMVSS 108, and it was never updated to account for vehicles with separate stop and turn signal lights. Regardless of the unlikelihood of the Jeep problem ever causing a safety hazard—it's got LEDs—the law is the law, and turn signal outage indication is still required.

Other recalls

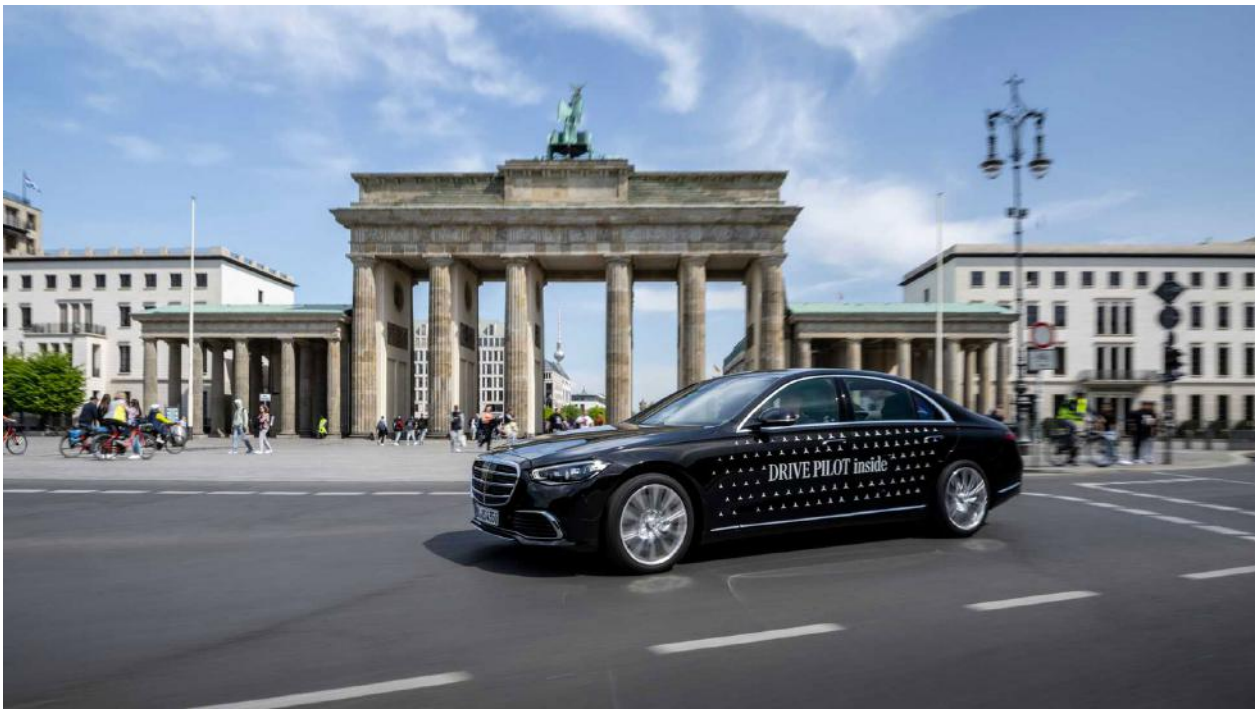
- Maserati, too, have got a rear light recall on their hands. They're recalling 56 of their MC20 supercars because the stop lights flicker instead of illuminating steadily. The faulty tail light assemblies have printed circuit boards with an incorrect transistor, which causes the flicker under unspecified "certain conditions". The affected cars were built between last 5 November and this 8 February. Early next month, owners of affected cars will get letters beckoning them back to the dealership for inspection and replacement of the taillights.
- And another recall's been added to Tesla's list, this time for faulty central touchscreens in almost 130,000 Models X and S from the 2021 and 2022 model years, as well as 2022 Models 3 and Y.
  The problem begins when the car is in “supercharge” (fast-charge) mode, which allows full charging within an hour. The vehicle's CPU overheats, and the touchscreen freezes up.
  So how does this relate to the lights? The turn signals, backup camera, and other

vision-related functions rely on the touchscreen actually working. When it doesn't, they don't. It's unclear exactly how many vehicles are affected, and—in contrast to those issued by other makers—the recall notice does not state how the car manufacturer plans to solve the problem or whether a software update will resolve the issue. Affected owners will eventually be notified by early July.

Driver Assistance News

Mercedes-Benz Drive Pilot is On the Menu

DRIVER ASSISTANCE NEWS



Drive Pilot is a go; it can now be ordered in Germany as an option in the S-Class for €5,000 and in the EQS for €7,430 (because it requires adding the €2,430 Driver Assistance Package Plus package). Plus tax, of course.

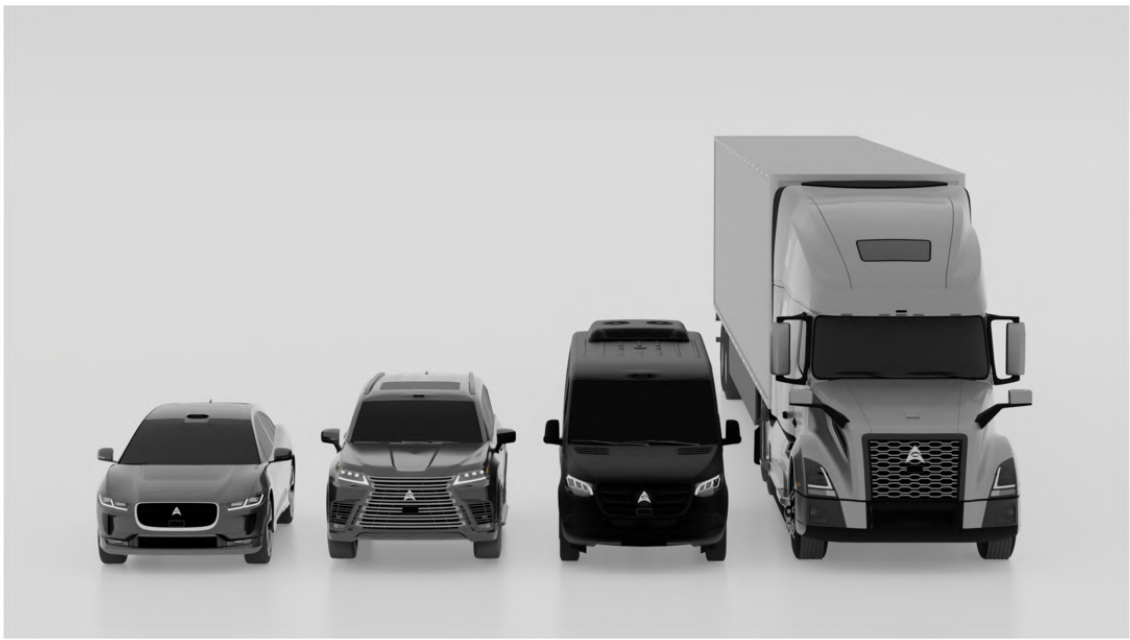
Drive Pilot is an L^3 conditionally-automated driving system which vehicle drivers (should we say 'users'?) can delegate control to under certain conditions—in heavy traffic or congestion situations on suitable motorway sections in Germany up to a speed of 60 km/h.

Drive Pilot controls the car's speed, following distance, and position within its lane. The route profile, events occurring on the route, and traffic signs are all analysed and taken into consideration. Drive Pilot also reacts to unexpected traffic situations and handles them independently, by means of evasive manœuvres within the lane or by barking. The system leverages the vehicle sensing technology of the Driving Assistance Package and includes additional sensors—radar and lidar, in addition to cameras—considered requisite for safe operation by everyone whose opinion matters except Tesla's Elon Musk, who continues to insist he's right and everyone else is wrong, despite mounting evidence he's got that backwards.

The exact location of a Mercedes equipped with Drive Pilot is determined using a high-precision positioning system much more powerful than conventional GPS systems. In addition to the data collected by lidar, camera, radar and ultrasound sensors, a digital HD map provides a 3D image of the road and the surroundings with information on road geometry, route characteristics, traffic signs and special traffic events. This high-precision map differs from maps for navigation devices by, among other things, its higher accuracy in the centimetre rather than metre range and its detailed junction and route model. The map data is stored in backend data centres and updated constantly.

AEye's Adaptive Lidar for Software-Defined Cars

DRIVER ASSISTANCE NEWS



AEye have demonstrated their 4Sight™ Intelligent Sensing Platform, with which automakers can embed the same lidar sensor in multiple integrated locations, optimising performance for vehicle-specific packaging and integration using AEye's proprietary sensing software. With AEye's adaptive lidar, automakers gain practical options in their pursuit of the software-defined car.

Using a singular platform, configurable through software and shown in multiple mounting locations, provides automakers full vehicle design and aesthetic flexibility—a giant advantage over obtrusive, hardware-centric lidar systems that cannot adapt to automakers' evolving performance and integration requirements. The 4Sight platform's inherent software configurability is designed to enable over-the-air updates to improve a vehicle's autonomous safety features over time, without having to replace hardware.

As automakers shift towards software-driven business models, they are looking to software-defined hardware to absorb new technological advancements, and to deploy new, innovative services. AEye's adaptive sensor platform can be configured via software for different vehicle placements, use cases, and markets to help makers realise their vision of smart assets and software-definable vehicles.

AEye's unique software-defined lidar solution enables advanced driver assistance; vehicle autonomy; smart infrastructure; logistics, and off-highway applications that save lives and propel the future of transportation and mobility.

General News

New CEOs at Stellantis

GENERAL NEWS

Maxime Picat (photo), currently head of the Enlarged Europe region for Stellantis, has been named the new head of purchasing and supply chain. Stellantis' European operations will be led by Opel/Vauxhall CEO Uwe Hochgeschurtz, and Florian Huettl will replace Hochgeschurtz at the head of Opel/Vauxhall. Other changes include the appointment of Alison Jones, head of Stellantis UK, as senior VP for the company's circular economy recycling business.

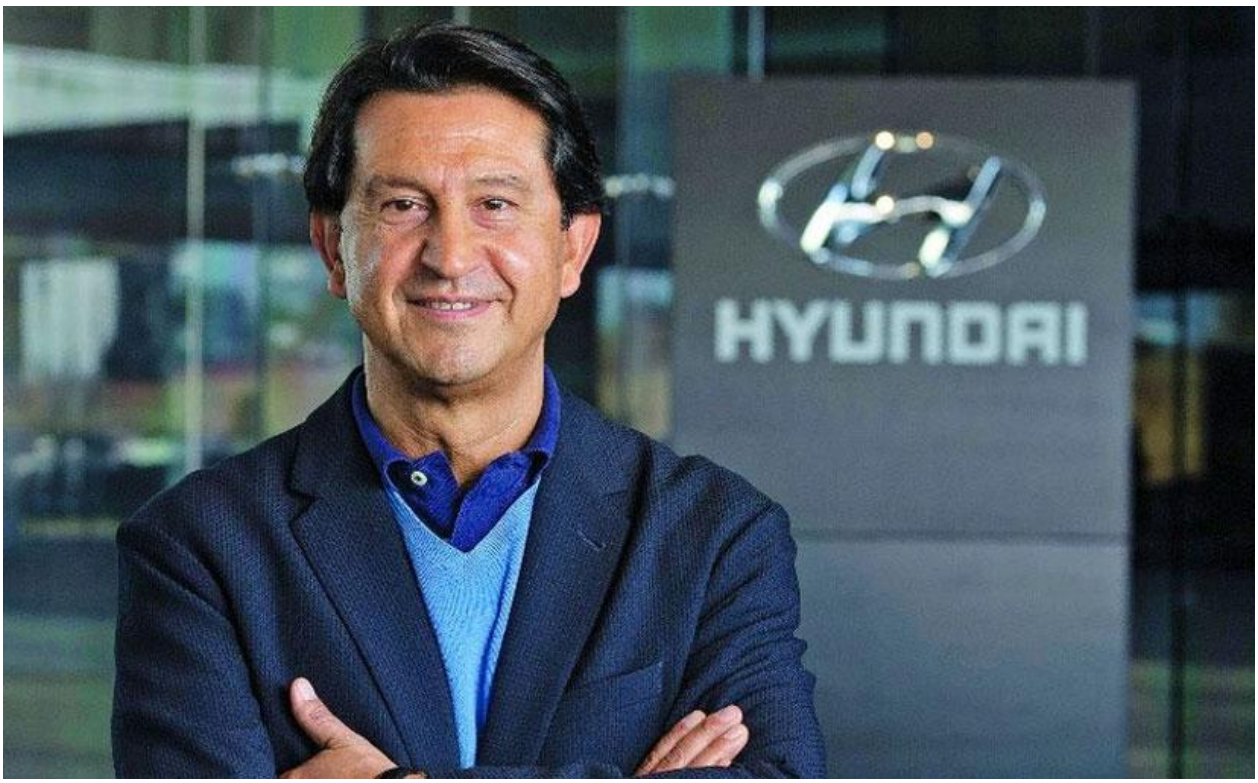
Stellantis CEO Carlos Tavares said the appointments "represent the bold ambitions of our strategic plan Dare Forward 2030".

Picat has led the Enlarged Europe region since Stellantis started operations in January 2021 after the merger of PSA and Fiat Chrysler; he had held a similar post at PSA from 2016 to 2021. Before that, he was Peugeot brand CEO from 2012 to 2016, and he worked in China for four years as deputy general manager and then general manager of PSA's JV in China with Dongfeng.

Hochgeschurtz was named head of Opel in September 2021, replacing Michael Lohscheller. He spent 10 years at Renault Group, and before that worked at Volkswagen Group and at Ford.

Hyundai Expands Functions to President, COO José Muñoz

GENERAL NEWS



Hyundai Motor global COO José Muñoz has been given a range of additional duties, including oversight of product and sales management in Europe and other regions. He retains his role as CEO of Hyundai Motor North America and Hyundai Motor America responsible for operations strategies, growth and performance in North, Central, and South America. In addition to Europe, he will add oversight of Africa, India, and the Middle East.

He will also oversee Hyundai's global talent recruitment and retention in their new technology-based businesses and will work more closely with Hyundai's venture capital firm in Silicon Valley to identify tech-focused talent in design and programming.

Muñoz, a native of Spain who joined Hyundai in 2019 from Nissan, also will join the company's board of management, pending the approval of Hyundai's general shareholder meeting in March 2023.
In a 15-year career at Nissan, he rose to become chief performance officer and head of Nissan North America and Nissan China. Prior to that, he held management positions at Toyota Motor Europe.