DrivingVisionNews.com

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Editorial

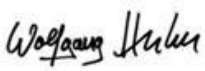
A Week Of Important Meetings

This past week—the 46th in 2021—saw three events relevant to the DVN community, all in Germany. Due to Covid, week 46 was packed with parallel-running, super interesting events. In normal years these events are distributed over 3 or 4 months. There was the highly successful DVN Lidar Workshop in Frankfurt; the first-since-Covid full in-puerson GTB meetings in Berlin, and the High Level 25th "Automobil Elektronik Konferenz" AEK in Stuttgart. Since the Lidar Workshop was well reported by Leo Metzemakers and Ralf Schäfer last week, I will focus to the both other events.

Let's start with the AEK at Carl-Benz Arena which mainly dealt with the industry's migration toward the software-defined car. Ricky Hudi chaired the meetings; the venue was covid-limited to the sold-out crowd of 499 visitors. Another 180 online participants joined virtually. The keynote speeches were clearly the highlights. ZF CEO Wolf Henning Schneider; Mercedes Benz Management Boardmember Markus Schäfer; BMW CTO Frank Weber; Bosch board member Harald Kröger; Infineon CEO Reinhard Ploss, and Porsche EVP Oliver Seifert gave their views about their paths to the software-defined car which is highly relevant for the future of car lighting, of course. Some of their slides explicitly mentioned lighting as high-customer-value; read more about it in this week's in-depth article.

The first in-person GTB meeting in about 2 years took place at the Novotel Berlin Tiergarten in the center of Germany's capital. About 30 delegates from all parts of Europe were in the huge meeting room, connected via internet to around 40 overseas delegates. Sound and video were prepared very well, not a single technical problem occurred (which we all know very well from many online conferences). The key decisions were taken in a tight time slot from 12 noon to 2 pm to allow North American delegates (5-8 am local) and Asian delegates (7-9 pm local) to participate in the same meeting.

At all of these events, and side-events around them, there were enthusiastic people, happy about personal contact with colleagues from all around Europe. The Covid situation unfortunately worsens now and we can only get vaccinated and hope it will be under control, so that we can have such fantastic events again.



Wolfgang Huhn
DVN Senior Advisor

Info concerning DVN Paris WS
Paris WS is confirmed on 1-2 February considering thecurrent local Covid rules (vaccination, masks). We will regulary keep you informed about any change (local and traveling situation), on the weekly newsletter.

In Depth Lighting Technology

AEK: The future Vision of the Big Guys
by Wolfgang Huhn, DVN Senior Advisor

The 25th Automobil Elektronik Kongress (AEK) took place on 16 and 17 November in Stuttgart, because the usual venue in Ludwigsburg (AEK is Well-known under Ludwigsburg-Congress in June every year) was not available, so Mercedes helped the organizers with their Carl Benz Arena. Title of the event was "The Automotive Industry on its Way to the Software-Defined Car".
The AEK is famous because of the high number of executive board speakers presenting their future concepts. Here is the place where collaborations between companies were announced and joint international initiatives were founded e. g. for standardisation and processes. Networking opportunities are legendary. Different to most congresses, many speakers present in German with simultaneous translation. This time lighting had no presentations of its own because there were several last year in the virtual AEK Congress, and there are not many presentation slots available. Lighting is every 2 to 3 years on stage, but always included as an important detail in many presentations.

The following is a collection of remarkable statements out of the top keynotes.
• **ZF** CEO Schneider says his company are ending all activities concerning the combustion engine. ZF are developing a Silicon Carbide SiC 800V battery module as the next core product. Software (SW) defines Hardware (HW). A big step for a former gear wheel company.
• **Mercedes** member of the board of management Schäfer announced that the full Mercedes E-Drive system will be developed in-house, cars will be electric, trucks will use H_2, and AMG will be electric from 2025 onwards. Next year an EQxx will be presented with more than 1000-km range and a consumption of less than 10 kWh/100km.

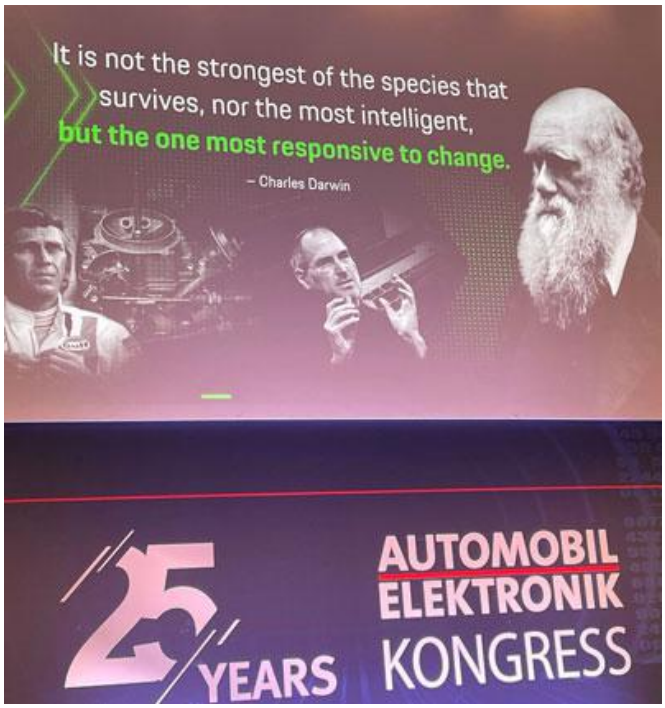
MERCEDES' MARKUS SCHÄFER

Mercedes are building an in-house operating system, MB OS, on the base of Standard software components. Mercedes' strategy is Digital Luxury which includes interior and exterior lighting.

• **BMW** CTO Weber described the BMW strategy as Reduced Aesthetics / Sustainable and Circular Thinking. Half of all knobs and switches will disappear from vehicle interiors; the best operation is the one which isn't necessary.

BMW'S FRANK WEBER

BMW**,** in 2025 will rework their UI and also their front lighting signature completely. BMW's software developers create customer value and competition differentiating functions only, and for sure there's to be no in-house BMW OS. Weber thinks a software spinoff company makes no sense, because software is the future heart of the automobile.
• **Bosch** member of the board of management Kröger stated that great software needs great hardware.



SLIDE FROM BOSCH'S HARALD KRÖGER

• The necessary in-car computing power in 2025 is twice that of 2021. Zone ECUs, which will support e. g. the lighting system, will trim in-car ECU count by up to 20 per cent. Bosch will offer L4 automated parking in twelve garages—by the end of 2021!
• **Infineon** CEO Ploss talked about the consequences of mobility as a service. He predicts that hard specifications at the start of a development will be substituted by evolution steps.
• **Porsche**'s EVP Seifert was the first speaker using a video. He talked about Porsche's strategy 2030, which says that the brand is the essential and the concentration to the basics is the key success factor.

PANEL: SIEVERS (NXP), KRÖGER (BOSCH), GROTE (BMW) URMSON (AURORA); RICKY HUDI

The panel discussion followed with Chairman Ricky Hudi, BMW EVP Christoph Grote, Bosch's Harald Kröger, NXP CEO Kurt Sievers, and Aurora CEO Chris Urmson, who recently made USD $1.4bn with the IPO of Aurora. Hudi surprised Urmson during the panel discussion with the question what he would do first, if he had Herbert Diess' job as Volkswagen CEO. "Increase the confidence in people" was a part of Urmson's answer. It was a most interesting panel with inspiring moderation.
Overall, the AEK congress was a fascinating event that gave a clear, sharp glimpse at the future visions of the big guys.

GTB: Together Again for the Very First Time

The GTB Committee of Experts meeting (CE) was the central event of the 15 to 19 November GTB, accompanied by several working group meetings at the Novotel in the center of Berlin. It was a hybrid meeting, with more than half the attendees joining in online, because travelling from Asia is still impossible due to the quarantine after returning. One German GTB delegate joined from his quarantine hotel in China which is mandatory before entering China. The US delegation also joined virtually.

One of the most interesting and pieces of information came from the US delegation. The US President signed the infrastructure bill which contained language directing NHTSA to update headlamp regulations and allow ADB (see **details and commentary** in last week's DVNewsletter). The US delegation sees this as a kind of slap in NHTSA's face.
Another US item was Docket #NHTSA 2021-6060 dealing with the effects of headlamp age-degradation on photometry.

An interesting detail of the working group front lighting (WGFL) was the discussion of the failure mode of a kilopixel HD high beam. The existing rules say the device has to be switched off if one element fails or a tell-tale has to be displayed in the dashboard. Both are not suitable for HD. Four different solutions were discussed, such as monitoring and failure signalization after photometric values are not ok any more. Other solution suggested were similar to the direction indicator (DI) regulations.

Another discussion was the stabilization time of 30 minutes before the photometric measurements. Several suggestions were discussed like: a stability is given after less than 3 per cent change occurs within 5 minutes, and others.
The points above are just quick spot-checks; a great many topics were discussed and debated. The next GTB CE meeting is planned for June 2022 in Sweden. Let us hope the complete GTB including US and Asia can join in perso.

Lighting News

U.S. Congress Orders NHTSA to Harmonise Vehicle Regs—What Might That Mean?

Analysis by Daniel Stern, DVN Chief Editor

LIGHTING NEWS

Last week we **looked at** the section of the trillion-dollar U.S. infrastructure bill, now signed into law, in which the U.S. Congress decreed that headlamp regulations shall be updated and ADB shall be approved within two years. The section before that one reads as follows:
SEC. 24211: GLOBAL HARMONIZATION
The Secretary shall cooperate, to the maximum extent practicable, with foreign governments, nongovernmental stakeholder groups, the motor vehicle industry, and consumer groups with respect to global harmonization of vehicle regulations as a means for improving motor vehicle safety.

Surely this, at least, cannot be a bad thing. How much better is it than "not bad"? It's only natural to run mind-movies of this statutory requirement causing American vehicle regulations to shift—or at least drift—towards international consensus, but in fact this statutory language doesn't actually require anything but undefined "cooperation". We encourage and applaud productive cooperation, as any reasonable person would.

But American definitions of "harmonisation" have long tended not to match definitions held—in government and industry alike—outside the North American regulatory island. Recall that some years ago there was a momentous international effort toward a harmonised set of requirements for vehicle exterior lighting system configurations. It was to have been a best-harmonised-practices specification, with the idea being that a vehicle built to comply with it would be regulatorily acceptable worldwide. More permissive national

standards could of course still be used for vehicles sold only where that lesser regulation is recognised. A simple and relevant example is turn signal colour: amber turn signals are accepted everywhere in the world; red ones only in some countries, so the best harmonised practice is amber turn signals. The effort toward this globalised standard was killed singlehandedly by an American delegate who said "*It's the only light on the back of the car that flashes; why does it have to be some other colour than red?*". He wasn't interested in thinking about regulatory overlap or harmonisation or best practices; he wanted the entire rest of the world to undo a well-backed safety decision made over half a century ago. It is hard to make much progress when side one thinks harmonisation is attained by participating in the process of gathering intelligence and developing consensus, while side two thinks harmonisation is attained by everyone else accepting side two's practices.

To be sure, there are valid, sturdy reasons why certain structural elements of the international-consensus regulatory process are incompatible with the U.S. legal system, and there are other complications; our three-part analysis on that is here: **one** • **two** • **three**. But there are also ways American regulators could—without degrading traffic safety (indeed, conceivably improving it)—reduce the enormous amount of duplicative effort and cost necessitated by divergent technical regulations, without apparent safety benefit.

This new law doesn't say anything about adjusting the U.S. Federal Motor Vehicle Safety Standards, nor do helpful words like *align*, *synchronise*, or *incorporate* appear. That's disappointing, as there is so much low-hanging fruit here; there are so many ways costs could be reduced, traffic safety improved, and consumer choice expanded (we've **looked at some of those**, too). It's seldom a bad idea to hope for the best, and so it's surely to be hoped this directive, despite appearing not to actually direct anything, might serve as a philosophical fulcrum over which for the American regulatory apparatus to be levered into productive action toward international regulatory coöperation.

DVN Interview Steve Barlow, Lumileds Automotive President

LIGHTING NEWS

STEVE BARLOW, PRESIDENT OF LUMILEDS' AUTOMOTIVE BUSINESS.

***DVN is releasing today** [the report](): **"Global Landscape of Automotive LED Light Source Suppliers 2021"**. To make this monthly report, DVN interviewed several LED suppliers. Find below, one of these interviews.*

Steve Barlow graduated from San Jose State University as B.S. in Electrical Engineering and hold an MBA degree from Santa Clara University. He has started his career as a systems engineer at Lockheed Martin and then moved into various sales and marketing leadership roles at Aventek, Hewlett Packard/Agilent, Velio Communications, Philips Lumileds, Intematix, and Cree.
In his first stint with Lumileds from 2003-2012, he was responsible for sales and marketing for General Illumination, Specialty and Automotive LED. He rejoined Lumileds in 2017 to lead the LED Solutions Business Unit. Since Oct 2020, he in charge of Lumileds' Automotive Business.

He kindly spoke with us shortly ago

DVN: We're in a period of substantial global change from climate to economies, pandemics and politics. What's your view on how these changes impact development of the automotive LED market?

Steve Barlow: Driving change through innovation is a core value at Lumileds and from a mind-set perspective, we have been resilient through the uncertainty that the pandemic has brought in both our OE and aftermarket automotive businesses and continued to spend a significant amount of money on research and development. We are excited and proud to continue to provide more energy efficient and safety enabling solutions to benefit the environment in which we live. As impactful as the pandemic has been up to this point in the end markets, from our business perspective, it's likely a short-term impact measured in years whereas the market response to climate change and other economic shifts will produce benefits more likely to be measured in decades.

DVN: Can you elaborate on the longer-term changes that have started or are coming your way?

Steve Barlow: Sure. We expect that climate change, global mobility, the importance of sustainability, and other economic and political factors will make people and governments look for new solutions that change existing dynamics. And we're already seeing some of this.

For instance: Electrification, energy efficiency and sustainability efforts to reduce global ecological (carbon) footprint, all directly relate back to an intrinsic demand for even more energy efficient lighting and this will accelerate and drive LED development and adoption.

Ever increasing mobility and transportation complexity for both people and goods will lead to new innovations that connect LEDs, lighting, communication and sensing as a path to improve safety for people, animals, goods and machinery in the transportation environment.

During the pandemic, one of the changes we also see is more people spending time in the outdoors and involved in DIY projects. This has had a very positive impact overall on the automotive aftermarket business and is likely a trend that will continue long term as people are finding new and different outlets for entertainment and spending their time and discretionary income.

And of course the critical and sustainable use of raw materials in the production and distribution of goods and the timely and more sustainable delivery of goods will undoubtedly result in business shifts and potentially change the industrial footprint as already evidenced with Ford and GM's announcements of entry into the semiconductor industry.

Overall these trend vectors point in the direction of growth for the automotive LED market for the foreseeable future, as well as a need for Lumileds to continue to leverage our global industrial footprint to optimize where we produce and distribute our integrated solution products.

DVN: You mentioned Ford and GM whose announcements may be accelerated due to current supply chain issues but are certainly more long-term strategic in nature. How is Lumileds as a tier-2 light source manufacturer managing the current inflation and supply-chain issues?

Steve Barlow: Lumileds saw some of this coming and we took action accordingly. However, the depth and duration of the current inflationary and supply-chain environment are impacting us just as they are virtually every other manufacturer involved in the global automotive industry. The magnitude is such that it cannot be compensated for by good planning and productivity. The increased costs of raw materials, extraordinary transportation and energy cost increases, and labor availability issues and work force costs increases are all factors that simply aren't within the control of manufacturers and suppliers. As a result, Lumileds can no longer absorb the increased costs and will join both its suppliers and customers in raising its prices for the foreseeable future.

It's a business reality that our increases are in line with those that have been reported for suppliers by the Wall Street Journal, Financial Times, CNBC and others. As we look forward to 2022, we're committed to do everything in our power to work with and negotiate with our customers to mitigate the impact but ultimately, we need to ensure that we can be a successful long-term partner and contribute to the success of the automotive industry.

DVN: The automotive LED light source is comprised of approximately 10 major companies. Do you foresee a consolidation in the market within the next ten years? What about new entrants?

Steve Barlow: Today there are mainly three major LED players on the OEM side of the automotive business with a few newer entrants and few niche suppliers who have a smaller materials system technology and packaging or platforms capability. It is difficult to predict whether a consolidation of the automotive LED manufacturers will occur and because of the high standards for quality and automotive processes and the associated cost to put these in place and establish a track record, there will likely not be a flood of new entrants in the OEM world. Lumileds understands that regardless of the technology, supplying this industry requires a level of quality, experience, and innovation that many LED manufacturers likely won't achieve.

At the same time, committed and successful LED solution suppliers must continue to innovate and to provide continuous incremental value for their customers while addressing new market applications and performance levels.

DVN: In our view, the automotive LED light source market is converging in the direction of a commodity market. Do you share this opinion? Which are the key factors giving a LED light source company a competitive edge in this market environment?

Steve Barlow: Price points for LED products in most markets have already reduced substantially over the last decade and the industry has been reaching asymptotes for cost levels and in some product areas have flattened or slightly increased in the past year. Certainly in the case of automotive applications, there is some commoditization for standard functions in which LED technology has achieved the promise of adding long lifetime and ruggedness and has fully replaced the same function as a halogen or xenon lamp. However, imagination and innovation driving new functionalities that were never before possible will continue. There are still also many examples where LED technology can deliver something new. A few examples:

- high luminance LEDs for slim headlamp design or miniaturizing optics for road signaling projection applications
- MicroLED technology for digital headlighting and communication displays, opening up a whole range of new application possibilities
- smart and integrated light source solutions for car body lighting, levering the full potential of the LED dies regarding optical properties, thermal/electrical operating conditions and mechanical integration.
- visible lighting for human vision will be complemented with infrared light to enhance camera vision.

I mentioned commitment earlier and it's an important concept. For us it means close cooperation with OEMs and tier-1s from early stage. Only with deep customer relationships is it possible to really understand future

requirements and identify or invent light source technologies that deliver the desired result in the framework of the system solution architecture.

DVN: So, diving a little bit deeper into the automotive lighting application evolution, what products and technology innovations are you developing and driving to the market to fulfill customers' future application needs in terms of functionality and styling?

Steve Barlow: We're excited about what lies ahead. We believe that ADB applications will expand significantly. Products like our Luxeon NeoExact a modular LED matrix solution, deliver superior contrast from an extremely compact footprint, and allows for significantly smaller, direct-imaging AFS/ADB matrix headlamp systems without primary optics.

The next frontier of HD ADB with microLEDs technology is being developed now. We are already working with OEMs and tier-1s to bring this technology to market for the next generation of fully digital headlighting.

And last but not least by any means, new lighting signature design and future styling trends related to electrical and autonomous vehicles require a whole range of new light source solutions. Lumileds' Luxeon 3D LED is already appearing on concepts and the world is seeing previously unimaginable possibilities for car-body signature and grill lighting in space-constrained environments.

LA Motor Show: Great Concept Cars revealed

LIGHTING NEWS

The **Mission R Concept** is Porsche's study of an all-electric GT racing car stacked-flats headlamps show a four-point light signature based on the design of the headlights on the Taycan electric sports

The **Hyundai Seven concept** is a new e-SUV, easily identified by the Ioniq's signature parametric-pixel display that delivers a welcome light sequence on startup.

Kia's EV9 is an all-electric SUV concept:

Kia's "Tiger Face" facade has been reinterpreted for the EV9, and is defined by lighting. The new BEV-style grille houses an intricate star cloud pattern display that is completely hidden behind the body panel of the Concept EV9 when not in use. Sequential patterns create a welcome light for the driver. The star cloud pattern inspired the Kia design team to create standout vertical DRLs. Rear lamps are shaped something like a spaceship!

Sunny Automotive Optech: 17 years of continuous deep cultivation

LIGHTING NEWS

舜宇车载光学
SUNNY AUTOMOTIVE OPTECH

Sunny Automotive Optech, a core subsidiary of Sunny Optical Technology (Group), headquartered in Zhejiang province, with offices in North America, Europe, Japan and Korea, is committed to automotive optical products development and production.

Sunny Automotive Optech main products cover Automotive Lens, HUD, LiDAR and Smart Headlamp. The company has cooperated with world-renowned Tier1 enterprises and Sunny Automotive lens market share has already reached the world Top1 for 9 years (TSR Report), which covers the global mainstream cars such as BMW, Mercedes-Benz, Audi, Ford, and so on.

Sunny Automotive Optech has built a number of laboratories for optical inspection and environmental testing with a full set of design, production, processing, testing equipment. Relying on the perfect quality control system, it implements the quality into every link of the research, development, manufacturing and marketing etc., serving for every customer in deep sincere and dedication.

"Smart eyes, Safer driving" is the philosophy that Sunny Automotive Optech adheres to.

We are committed to developing safer and more comfortable automotive optical products, providing optical solutions for autonomous driving and intelligent driving, and the goal of "maintaining the leading position in the automotive optics industry" is constantly working hard. Seventeen years of continuous deep cultivation, writing a new chapter in the optical industry.

Volvo Invests in Optical and Imaging Technology Startup

LIGHTING NEWS

Volvo Cars' latest investment is in optical and imaging technology startup Spectralics, through the Volvo Cars Tech Fund, the company's venture capital investment arm. The investment gives Volvo Cars access to promising technology at an early stage of development that could contribute to making cars safer and revolutionise in-car user experience.

Coming from a background in aerospace technology development, Israel-based Spectralics creates state-of-the-art imaging and optical infrastructure spanning materials, hardware and software, enabling a wide variety of advanced optical capabilities.

One of the company's core solutions is the multi-layered thin combiner (MLTC) which is a new type of thin optics 'film' applicable to see-through surfaces of all shapes and sizes. Integrated into a car's windshield or windows, the technology could be used to overlay imagery on the glass.

In a windshield configuration, the technology could create a wide field of view 'heads-up display' that can instill a sense of distance as virtual objects are superimposed onto the real-world environment for a safe and immersive experience. "Spectralics is an exciting company with technology that holds truly great promise," said Henrik Green, chief product officer at Volvo Cars. "By supporting their development, we can bring forward the potential their products could have in future Volvo cars."

Other potential uses of the technology include advanced filters for various applications, in-cabin sensing, blind-proof front-looking cameras and digital holographic projections.

Spectralics is an alumnus of the MobilityXLab programme in Gothenburg, Sweden and is part of the DRIVE network in Tel-Aviv, Israel. They are both accelerators for promising start-ups with ideas that can break new ground in the mobility sector. Volvo Cars has been a leading partner in both initiatives since 2017.

Aftermarket OLED Tails for Brand-New Mk5 Range Rover

LIGHTING NEWS

The new Mark 5 Range Rover was only revealed last week, but it's already got its first, third-party modification. Glohh, a British company already known for making Range Rover parts, have revealed the GF-1; an enhanced taillight, offering OLED technology.

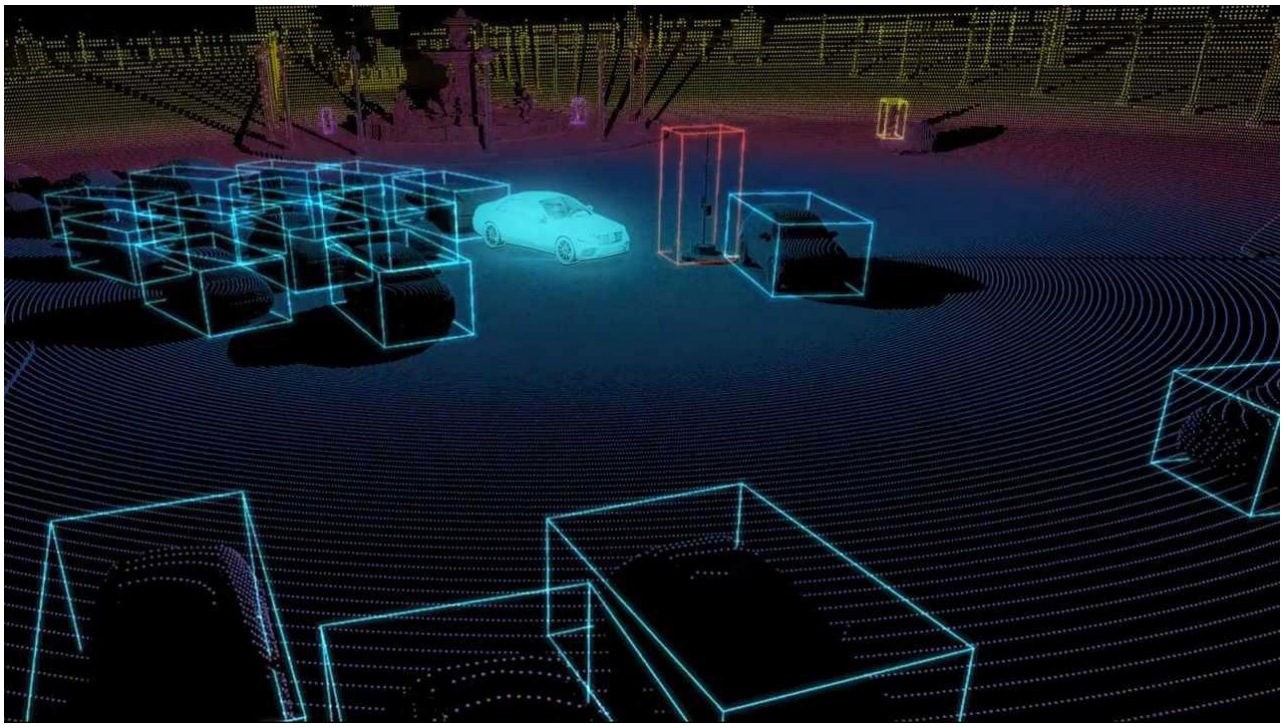
The GF-1 takes the place of the standard rear lamp unit, but brings in an Audi-style mood matrix system—and a blank canvas when it comes to a light signature. Upon release, three light signatures will be available. Glohh says the brightness of each individual segment will also be controlled, in order to reduce the dangers of glare.

'As a long-time admirer of Range Rover, I have a great amount of respect for the new design philosophy. Light has always been a medium of external communication and interaction; our mission is to bring this to life on a vehicle praised for its distinct identity,' said Dr Faheem Rafiq, lead designer at Glohh. 'Identity needs to be presented through modern lighting systems, and in this case, there was an opportunity to enhance the existing minimalist design with a more alive and eye-catching expression, in true Glohh fashion.'

Driver Assistance News

Valeo G3 Lidar Debut in 2024

DRIVER ASSISTANCE NEWS



Valeo presented their third-generation scanning lidar, set to be launched in 2024. This new technology, which offers significantly enhanced performance, stands to bring autonomous mobility closer, and to provide previously-unavailable levels of road safety.

Geoffrey Bouquot, Valeo R&D and strategy SVP, said “Valeo’s third generation lidar is a major technological advance toward the autonomous vehicle. This upgrade strengthens Valeo’s technological and industrial leadership in the field”.

Valeo’s third generation lidar delivers unrivaled performance in terms of range, resolution and frame rate. It reconstructs a 3D real-time image of the vehicle’s surroundings at a rate of 4.5 million pixels and 25 frames per second. Compared to the previous generation, the resolution has been increased 12 times, the range tripled, and the viewing angle is 2.5× bigger.

Thanks to its unique perception capabilities, this new lidar can see things that humans, cameras and radars cannot. This means that driving can be delegated to the vehicle in many situations as level 2 automation and above, including on the highway at speeds of up to 130km/h. Even in such situations, a vehicle fitted with the third-generation scanning lidar can manage emergency situations autonomously.

Valeo’s scanning lidar detects, recognises, and classifies all objects located around the car. If the objects are moving, it measures their speed and direction. It even measures the density of raindrops to calculate the right braking distance. It tracks nearby vehicles, even when they are no longer in the driver’s line of sight, and uses algorithms to anticipate their trajectories and trigger the necessary safety maneuvers.

Valeo designs and manufactures the entire system, including the hardware, the software and the associated artificial intelligence, the “brain” that combines collected data and enables the vehicle to instantly make the right decision. Its software automatically adapts to the environment and improves its performance over time through regular updates.Valeo’s lidars are produced in Germany at Valeo’s Wemding plant in Bavaria, where 300 engineers are dedicated solely to this technology, for which over 500 patents have already been filed.

Have a look on the video presented by Geoffrey Bouquot, Group R&D, Product Marketing, Strategy and External Affairs Senior VP and Clement Nouvel, Lidar Technical Product Line Director who made the keynote at the DVN Lidar conference
https://www.youtube.com/watch?v=JKcOPFeKeAs

TriEye Wins CES 2022 Innovation Award

DRIVER ASSISTANCE NEWS

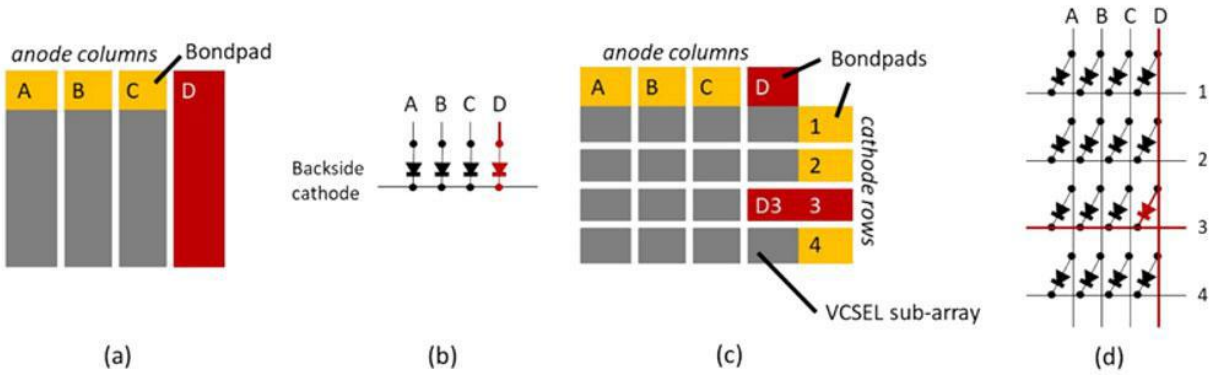
Israel-based TriEye have a new type of sensing technology that can be used to help autonomous and driver assistance systems to see better in adverse conditions—and now they've won an CES 2022 Innovation Award for it. The technology uses short-wave infrared (SWIR), which is not new, but has mostly been restricted to the aerospace and defense industries due to its high cost. TriEye say they have made engineering breakthroughs that have driven down the cost enough to compete with regular cameras that can be found in a mobile phone or vehicle today, and to outperform other types of sensors on the market.

Using SWIR and a proprietary illumination source also developed by TriEye, the company have built a sensor they call SEDAR which, according to TriEye, provides all imaging and depth information required for ADAS and autonomous systems. If so, it could replace the conventional sensing stack of cameras, radars and lidars. Bakal says the TriEye systems' low cost is key to “truly enable mass market adoption".

The company already are working with major CMOS foundries to produce the sensor, and planning to scale up eventually to millions of units per year. Bakal says TriEye are working with major automakers on commercialising the Sedar. The CES Innovation Awards are judged by a panel of industrial designers, independent engineers, and members of the tech media, the award honors outstanding design and engineering in cutting edge electronic products.

Lumentum Claim VCSEL Array Breakthrough

DRIVER ASSISTANCE NEWS



Topologies for an addressable VCSEL array chip include
(a) a column addressable chip with stripes of emitters, multiple anode bond-pads and a backside cathode
(c) a matrix addressable chip with anode bond-pads for each column and cathode bond-pads for each row.
Corresponding schematics are shown respectively in (b) and (d).

Lumentum, a developer of vertical-cavity surface-emitting laser (VCSEL) arrays for 3D sensing and lidar applications, have expanded their multi-junction VCSEL-based offerings to include new, breakthrough high-performance 1D and 2D addressable arrays for automotive, consumer, and industrial sectors.

VCSEL arrays have become the preferred laser illumination source for short-range 3D sensing applications such as biometric security and world-facing lidar in consumer mobile devices due to their proven reliability and ability to be manufactured at scale.

Lumentum's multi-junction VCSEL arrays can deliver the significantly higher peak optical power densities and efficiencies required for longer-range applications by decreasing the electrical current needed and simplifying electrical driver and package design. The addition of array addressability to Lumentum's VCSEL arrays enables a more compact, reliable, robust, and fully solid-state lidar solution with no moving parts.

"We're excited to build on our industry-leading multi-junction VCSEL technology with this breakthrough and bring addressable array illumination sources to longer-range depth-sensing applications like lidar," commented Matt Everett, Product Line Director of 3D Sensing at Lumentum.
"On-chip array addressability can eliminate the need for mechanical beam scanning, which opens a new world of possibilities for autonomous vehicles and emerging 3D sensing systems and will help accelerate lidar adoption across a wide range of customer applications."

Yandex to Use In-House Lidar for AV

DRIVER ASSISTANCE NEWS

The self-driving company founded by Russian technology giant Yandex say their new generation of vehicles will rely on an in-house lidar system to better see the road in the country's often harsh driving conditions. The software-defined lidar solution is capable of seeing 500 m away and operating in frigid weather will be the main sensor on new cars from the Yandex Self-Driving Group, the company announced last week.

Yandex cars were previously equipped with sensors made by Velodyne Lidar, and Yandex say they will continue to use those for near-field detection. About 70 cars in Russia, the U.S. and Israel will be equipped with the new sensors, which bounce light off of objects and compare the results to a 3D map in order to create a real-time image of the road.

Yandex Self-Driving Group were founded in 2017 and their autonomous vehicles have driven more than 16 million km. The company began testing lidar in 2019, and are now developing prototypes for side sensors and a version for delivery robots they operate on a handful of U.S. college campuses and for the Russian postal service.

General News

Update from Valeo CEO Jacques Aschenbroich

GENERAL NEWS

After a year 2020 shaken up by the Covid crisis and faced with the shortage of semiconductors which is slowing down the automotive market, the equipment manufacturer Valeo (180 sites,110,000 employees) still forecast a turnover of just over €17bn in 2021. At a time of profound change in the sector in the face of climate challenges, Jacques Aschenbroich, is pleased to having taken the turn to electric more than ten years ago.

"The shutdown in China took place in early February 2020 but production has restarted much faster. So the economic and social impact there has been weaker than what unfortunately has been experienced in Europe and North America."

"After the shock of 2020, the recovery was strong but the shortage of components slowed all the chains.

In 2020, we practically stopped all production for six weeks. But in the second half of the year, the rebound had been spectacular. In 2021, with the semiconductor shortage, it is much more diffuse. And the market will be of the same order of magnitude as 2020. The production was disrupted from the 1st quarter but the most difficult moment was probably the 3rd quarter. Now we feel like it's getting better, step by step. This is how we feel and what most of our customers are telling us in recent days. Of course, that doesn't mean that everything is back to normal."

"The shock that was there should not be underestimated. It is true that in terms of factory management, it is more complicated when you have last minute shutdowns because customers tell you that they ultimately do not come and pick up the parts. But humanly, knowing that everything was stopped for six weeks, it was a huge shock for the teams."

"We have taken the turn of EV for more than ten years. In 2009, we decided to stop all development on diesel and develop low voltage electrification. In 2016, we created a jv with Siemens, this time specializing in high voltage. That is to say everything related to electric motors, inverters, chargers for high voltage electric vehicles. We are the world leader in these two businesses."

Peugeot 2008 takes top spot in Europe sales

GENERAL NEWS

The chip shortage has shaken up the traditional ranking of best-selling models in Europe, with a surprise winner in October: The Peugeot 2008 small SUV. The 2008, which was launched in the current generation in 2019, is available with internal-combustion engines or full-electric drivetrains. There were 18 thousand 2008s sold in October, just 877 more than in October 2020 – but in a market that was down 29% because of the chip shortage.

Automakers are prioritizing production of higher-margin and emissions-critical models during that shortage. That means SUVs, which can command prices thousands of euros higher than their hatchback or sedan equivalents, as well as full-electric and plug-in hybrids.

1. Peugeot 2008	18,000	-5.2%
2. Renault Clio	14,000	-34%
3. Dacia Sandero	14,000	-8.3%
4. Peugeot 208	13,000	-26%
5. Ford Focus	12,000	-15%
6. Fiat 500	12,000	12%
7. Fiat Panda	12,000	-35%
8. Opel/Vauxhall Corsa	12,000	-41%
9. Volkswagen T-Roc	12,000	-19%
10. Renault Captur	12,000	-34%

EUROPE'S TOP-SELLING MODELS, OCTOBER (SOURCE: JATO DYNAMICS)

The Golf remained in the № 1 spot through October, with 186,000 sales. That was 22,000 units ahead of the № 2 Toyota Yaris. The 2008 is in fifth place, and the Fiat 500 in 10th.