DrivingVisionNews.com
Automotive lighting and driver assistance technologies

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Editorial

DVN's Best Wishes To You For A Great And Prosperous New Year

I wish a great and prosperous new year to all the automotive lighting makers and users, all the engineers and designers and researchers and educators—the whole DVN community and your loved ones. I wish you great creativity again in the new year in order to have lighting at the top of automotive innovations. You are really helping DVN with your thoughtful generosity in sharing your ideas, opinions, challenges, and solutions.

And I would like to also wish a great new year to friends who are working for Driving Vision News, and are making a wonderful job. Salomon Berner and Philippe Aumont in France, Daniel Stern in Canada; B.Y.Chung In Korea, Kim and Eiichi Ono in Japan; Jean-Paul Ravier and Jean-Paul Charret in France, Ralf Schäfer and Leo Metzemaekers in Germany; Carine Abouaf (DVN marketing) and Noam and Sarah Ouaknine who manage the DVN website; Eve Taberna (DVN document presentation), Robert Sitbon for pictures and videos.

The main job of DVN is to help the lighting community. The increasing number of Gold/Platinium member companies—150 at the end of the year—of Gold lighting members (more than 1,100!), and of interested lighting outfits (more than 2,500) show that there is strong interest in the kind of networking we facilitate and information we publish. We're delighted and proud to fill this role.

Don't forget about the DVN Workshop in Munich, focussed on high resolution lighting. It will surely emphasise the enormous progress being made by the vehicle lighting industry. Lectures will be given by Audi's Huhn, BMW's Kaelble and Isele, JLR's Wickramasinghe, Volvo's Matha, Ford's Heitplatz, PSA's Goncalves, Renault's Bedu, Opel's Schneider, Hella's Kleinkes and Merkel, ZKW's Klaedtke, Marelli's Stella, Varroc's Morgan and Neumann, Valeo's Fleury and also from several experts in lighting and regulations. For more information, **contact DVN's Salomon Berner**

Finally: to prepare his important session at the DVN Munich Workshop concerning the introduction of new lighting functions into regulations, GTB President Geoff Draper needs your help. Please respond to his 4-question survey as soon as you can.
Sincerely yours

DVN President

In Depth Lighting Technology

A Survey of DVN Members

A Message From GTB President Geoff Draper

As most of you know, GTB is the international automotive lighting and light signalling expert group. As GTB President, I am preparing the regulatory session for the DVN Munich Workshop scheduled for this coming 29 January, and I would like to ask for your assistance.

I'll be discussing the introduction of new lighting functions into regulations because I understand that this is a topic that is of major importance to many companies, trying to develop their future development plans. I believe much progress has been achieved as regulators strive to remove barriers to innovation for traffic safety and to reduce the regulatory burden for all stakeholders. But it seems that representatives of industry remain skeptical, as reported in the recently published DVN Report on the future of exterior lighting. The summary of its regulatory section states:

"*The speed of lighting innovation is not synchronised with the speed of approval by regulatory bodies. Worldwide OEMs and Tier1s expressed their severe concern about the speed of movement of regulation versus their investments necessary in innovations.*"

I think the most practically important aspects of this concertn are **the limits of regulators' ability to permit innovative features without compromising safety, and how industry can help.** This is a key question because some innovations are developed to facilitate styling that remains a prime driver led by appearance differentiation, dynamics, and signature features. These features may be safety-neutral, but are not allowed by current regulations and there is nervousness among regulators that a sort of "Pandora's box" may be opened by allowing new functions and lighting features unless effective requirements are established in the regulatory provisions.

In preparation for the DVN Regulatory Session at the Munich workshop, I would like to kindly request your earliest possible response to a short questionnaire. To give me time to prepare the summary for the Munich workshop, please **email your replies to me before 13 January.** Responses go to a dedicated email address set up specifically for this survey, and all responses will be kept in strictest confidence; they will not be published, shared, or otherwise distributed. I will personally read all responses and produce a summary that will not reveal anyone's personal or commercial details. Please copy and paste the following questions into your email response, then fill in your answers.

_____

Your Name:

Your company, organisation, or other affiliation:

1. Please explain in detail your agreement, disagreement, or partial agreement with this statement:

"The speed of lighting innovation is not synchronised with the speed of regulatory approval. Worldwide automakers and tier-1 suppliers are severely concerned about the speed of regulatory evolution and its effect their innovation-related investments and activities."

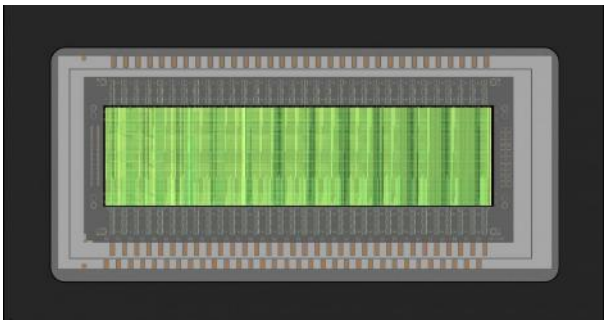
2. Without divulging commercially confidential information, please give examples of lighting innovations (features, functions, hardware, etc) that you want to introduce, but can't because they're not allowed by existing regulations. Please note which regulatory systems are making problems—UNECE, Chinese GB, US FMVSS, laws of specific countries or individual US states, etc—and what kinds of problems they're making.

3. What actions should non-governmental organisations (NGOs) like GTB, OICA, CLEPA, JAPIA, MEMA, and IMMA take? Please explain your answer.

4. What assistance are you prepared to offer to these kinds of NGOs to support and encourage regulators to introduce the required changes?

Lighting News

µLED Vehicle Lighting Field Grows



Apart from display applications, Micro LED has also been adopted for automotive lighting to create innovative applications including projecting images, road marks and other information to enhance safety.

Japan-based **Nichia** have partnered with Infineon to develop a HD light engine (shown here) with more than 16,000 microLEDs for automotive headlight applications. **Osram** have begun developing the second generation of their hybrid Eviyos light engine featuring 25,600 pixels on an LED chip with 40 µm pitch—which fits into the microLED category even though Osram don't promote it as such.
Hella are launching a new high resolution lighting system with more than 30 kilopixels. And earlier this year, **Valeo** launched their high resolution PictureBeam Monolithic 4-kilopixel lighting system in conjunction with **Cree**.

Epistar, Leyard Join for Tiny-LED Plant

EPISTAR LEYARD

Taiwanese LED chip maker Epistar and the Leyard Group are cooperating to set up a production centre for mini- and microLEDs in Wuxi, Jiangsu province, China.

The two companies plan to invest a total of RMB ¥130m (€16.6m) on the project and expect to start mass production by 2023. Epistar say they might form a joint venture with Leyard for the project and will invest by stage depending on the operation.

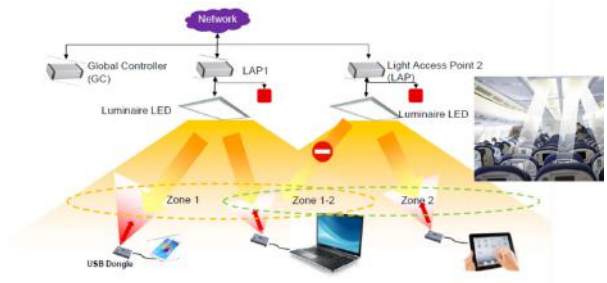
Seeing the increasing demand, Epistar plan to double their capital expenditure in miniLEDs, particularly for inspection and testing equipment.

BMW Big Six Lights Up the Grille

Every BMW X6 (except in the USA) has adaptive LED headamps with laser booster optional. And buyers can make their car stand out aesthetically, too by specifying optional illumination for the grille. It's activated by opening or closing a door, and the driver can also switch it on and off manually. And cars with the €1,800 Visibility Package (laser booster) get prominent blue **X**-shaped elements inside the headlight modules.

Other optional tech includes the steering and lane control assistant with traffic jam assistant, along with lane keeping assistant with active side collision protection. What BMW call an Evasion Assistant is part of Driving Assistant Professional, as are rear collision warning, road priority warning, and wrong-way driving warning systems, cros-traffic alert, Lane Change Warning, Emergency Stop Assistant, and reversing assistant.

CEA-Leti, SLD to Show LiFi at CES 2020



At the forthcoming CES 2020, SLD Laser and CEA-Leti are presenting their development in LiFi applications. SLD Laser have announced high-resolution sensing and ultra-high speed LiFi communication technologies for automotive and consumer applications. They have developed laser LiFi communication technology that delivers high-speed data rates of over 20 Gb/s, which is twenty times faster than 5G data transfer. The white light sources can be collimated for long range mobility applications or configured for floodlight broadcast to address large areas. The sources deliver a unique combination of ultra-high data rate and long-range broadcast to address the intense data transfer needs of emerging mobility applications such as smart cars & smart cities. SLD's LiFi leverages the unconstrained visible light spectrum to overcome challenges of RF and Wi-Fi, and while delivering data securely compared with incumbent technology.

And CEA-Leti, based in France, will demonstrate their Multicell LiFi system (shown here). They're saying it's got the first-ever smart orchestrator that automatically detects interference between lighting zones in networks and optimises data transmission rates for each nearby device. The LiFi-multicell system can provide data-transmission rates up to 150 Mb/s over distances up to three metres, with LED light sources.

Koito Buy India Subsidiary Shares

Koito's board of directors have decided to buy all shares of their subsidiary India Japan Lighting, making IJL into a wholly-owned subsidiary.

Koito established IJL in 1997 with local partner Lucas TVS to manufacture and sell vehicle lighting equipment. Since then, IJL have been supplying automotive lighting equipment mainly to Japanese automotive manufacturers in India. The automotive market is expected to grow over the long-term, there, making it necessary for the Koito Group and IJL to accelerate their decisionmaking so as to contribute to the growth of IJL's profitability and to the mid- and long-term growth of the Koito Group. IJL's capital will also be increased to strengthen the financial base.

Driver Assistance News

AV and Smart City Tech at CES

This year at CES lidar manufacturers, sensor chip providers, automobile companies and other technology builders are presenting ideas and solutions for autonomous driving and smart city applications. Examples:
AEye, an artificial perception provider, have integrated Infineon's microcontroller into AEye's iDAR™ platform to ensure a robust, software-definable platform that is functionally safe for AV initiatives.

Continental (image) reported the creation of a Smart City Mobility and Transportation Hub integrating Continental's sensors and intelligent software into the infrastructure. The technology aims to improve traffic flow, reduce pollution and enhance safety.

On Semiconductor will present their latest lidar technology featuring long-range and in-vehicle automotive imaging and detection technology. The company's single photon avalanche diode (SPAD) based silicon photomultiplier (SiPM) technology is the detector of choice in the lidar industry. Multiple lidar sensor manufacturers will showcase products enabled by ON Semiconductor SiPM detectors.

Seoul Robotics, the Korean lidar sensor software provider who secured USD $5m funding to expand the market in North America, will exhibit their SENSR software platform. The AI-enabled perception platform for 3D lidars provides accuracy of object detection at minimal computational cost.
Lidar maker **Quanergy** will show their solid state lidar-based Access Control and People Counter products for physical security and smart space applications.

Pioneer to Mass-Produce 3D Lidar Sensor

Pioneer have announced their development of a compact mass-production 3D lidar sensor with improved performance, an extended measurement distance, and more. The new lidar sensor is expected to be equipped in L3+ AVs. It's planned for release in the first half of next year, with full- scale production in the second half.

Pioneer have been providing verification models from 2017 to 2018, and continued verifying performance through demonstration testing and other activities.

The new 3D-lidar sensor coming in autumn 2020 uses a MEMS mirror-based scanning method. In addition to offering high resolution, it has been downsized to less than 20% of the previous model released last year, while achieving 1.5 to 2 times the measurement distance.
There are three types of sensors with different angles of view and measurement distances, and an angle type, making it possible to accommodate customers' needs by combining the different types.

General News

PSA–FCA Merger Update

PSA and FCA say the new entity will have the leadership, resources, and scale to be at the forefront of a new era of sustainable mobility. The combined company will be the 4th largest global automaker by volume, and the 3rd largest by revenue, with annual sales of 8.7 million units and combined revenues of nearly €170bn.

The two companies also say the merger will deliver approximately €3.7bn estimated annual run-rate synergies with no plant closures resulting from the transaction. Synergies are expected to be net cashflow positive.

The industrial rationale is for the bigger combined company to leverage investment efficiency across a larger scale for market solutions and technologies in new energy vehicles, autonomous driving and connectivity. While they say no plant closures will result from the transaction, some long-term adjustment to overall manufacturing capacity and plant-model mix is seen by analysts as inevitable as the two forge collaborations in engineering and product architectures. They also said there is an excellent working relationship between the two management teams, 'which share successful track records in turnarounds, value creation and successful OEM combinations'.