

Tue, 10 October 2023
Weekly Newsletter


Lighting & ADAS

NEWSLETTER #824

PixCell LED

Ultimate precision in perfect alignment

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

SAMSUNG



Editorial

Another ISAL In The Rearview; DVN Workshop Ahead

ISAL is over, and life is back to usual. For some of us, that means a relaxing week. For others, the opposite with tons of emails, meetings, and reporting! Our team was really busy this week, to be able to provide you a 62-page digest report on ISAL. We take notes for the people who attended or participated, and we inform those who were not there—just like we did two weeks ago for ALE in China.

It was also a busy week because we have finalized our program for the next DVN Workshop in Shanghai, to be held on the 7th and 8th of November. We will have lectures from fully *e/leven* automakers, including Human Horizon, Jidu, IM, Avatr, and Polestar. They will show and explain their latest lighting technology, displays, and electrical architecture—as will longer-established makers like JLR, Audi, Volvo, and VW. It's a very large variety of cars and technology.

And there will be ten lectures from Chinese, European, and American tier-1 suppliers. For the second time, we will hold a panel discussion on lighting technology, with a focus on the Chinese market.

Me, personally, I will chair two panel discussions: one with main stakeholders in Chinese regulations: SMVIC, CATARC, and the drafter of the new Chinese GB standards for RID (road illumination devices) and LSD (light-signalling devices). It will be possible to have an open discussion about timeline and new feature like AD-signaling lamps and road-projection of signals and symbols. The other panel discussion will be with CATARC to talk about C-NCAP's 5-star protocol including ADB.

This will be a grand event; you will not want to miss it! Find more information and [register online](#).

MATHA Paul-Henri
DVN COO and General Lighting Editor

In Depth Lighting Technology

DVN, Bentley Visit KSLD Laser Fab



L-R: P. Rudy, M. Yamauchi, M. Fukahori, E. Goutain, R. Ong, W. Huhn, I. Haughton, J. Kovacevic, T. Brandes

Our visit to the KSLD headquarters in Fremont before the San Francisco DVN Workshop was perfectly organized by Josip Kovacevic. To be as efficient as possible, it was a joint meeting with the head of Bentley lighting, Ian Haughton.

KSLD COO Dietmar Zapf and VP of Engineering Cole Cunnien introduced the company and the Fremont facility, which was completed in 2009. The former name of the company was Soraa Laser Devices, with Nobel Laureate Shuji Nakamura as CTO. In 2019 the factory was taken over by SLD Laser. Two years ago, SLD Laser was acquired by Kyocera, whose name comes from **Kyoto Ceramics**.

At the Fremont facility, mainly EPI and CoS (chip on submount) production is running 24/7. The GaN-specific laser fab can process 4" and 6" wafers. The Cycle—lithography, etching, deposition—runs several times before back-end and finishing processes. Special bonding and transfer processes to ensure thermal robustness are important KSLD intellectual property.

The KSLD factory is surrounded by Meta's (Facebook) buildings, and close to several primary highways and bridges which facilitate travel to and from the factory .



Impressions from the fab tour

Their remote laser light source is also known as the famous "sugar cube" used by BMW. Another spectacular fibre optic application is a tough fibre more than 100 m long, homogeneously illuminated by a single laser diode.



The KSLD LaserLight Fiber remote laser source offers extremely high luminance in a super-compact package, and can produce tight, narrow beams. Specifically: more than 100× the luminance of typical LED, LaserLight SMD delivers 500 lumens of white light and 1,000 cd/mm² output from a miniature 7-mm surface mount device (SMD) lighting package. Beam angles of 2 degrees or lower are achieved with optics of less than 35 mm in diameter, well within convenient lighting system packaging constraints.

This unique form factor makes high-precision, ultra-compact illumination that may be sealed in a location remote from the laser and its electronics, which may be placed in another location that has more favourable physical and thermal characteristics.

Other intriguing KSLD laser application innovations like LiFi and lidar were also shown at this fascinating morning show-and-tell session.

Tesla Add HELP Fast Hazard Lights to U.S. Cars

LIGHTING NEWS



In June 2021, we [reported](#) on ESS-HELP, an American outfit seeking to update the hazard warning light function by making it go faster. They showed their technology at a DVN Workshop in Michigan. And now Tesla vehicles are being equipped with the faster flasher function with an over-the-air software update.

Ordinary hazard flashers operate at the same pace as turn signals: 1 to 2 Hz. The ESS-HELP flashers go at 2 to 6 flashes per second, instead. The Tesla update is in progress now for Model 3 and Y cars, as well as recent-model Model S and X cars.

Despite the company's name, the new flashers are not an ESS (Emergency Stop Signal) as defined in UN Regulations; they don't activate under urgent braking—it's just faster-rate operation of the hazard warning flashers under certain conditions. With cars now being equipped, perhaps crash-data proof of some safety benefit might come in the future, but for now NHTSA have declared (in an [interpretation letter](#) containing fully *nine* footnotes) that under constrained usage conditions, the faster flashers do not impair the effectiveness of the ordinary hazard flasher function—which all vehicles must still continue to have, and must use under conditions other than those NHTSA has decided the faster flashers are not detrimental to the safety or legal compliance of a vehicle. Specifically, the faster ESS-HELP flashers can be activated automatically after a severe crash which disables the vehicle, or manually while the car is in Park or the parking brake is applied.

Marelli AL France: Reorganization Project to a French Site

LIGHTING NEWS



Automotive Lighting France has presented a reorganization project for its plant in Saint Julien-du-Sault to the Social and Economic Committee. Marelli Automotive Lighting France manufactures rear lights for vehicles.

The plant is currently facing a significant drop in short- and medium-term order and very weak production forecasts, due to declining customer volumes in Europe, and to the fact that, despite its technological strengths it has not won any projects from automakers that would have been profitable from 2023 onwards.

Over the last two years, the plant has been operating only at 30% capacity. Despite the efforts made by the company's teams and management, the plant has reported a significant operating loss of about 24 million € between 2018 and 2022 and market forecasts are negative for the coming years.

In this situation, in view of the threat to competitiveness and in absence of perspectives for a lasting recovery of the plant, it has been framed to launch a transformation project involving the closure of the site of Saint-Julien.

Today the management presented the Social and Economic Committee with a project that could potentially impact 125 positions.

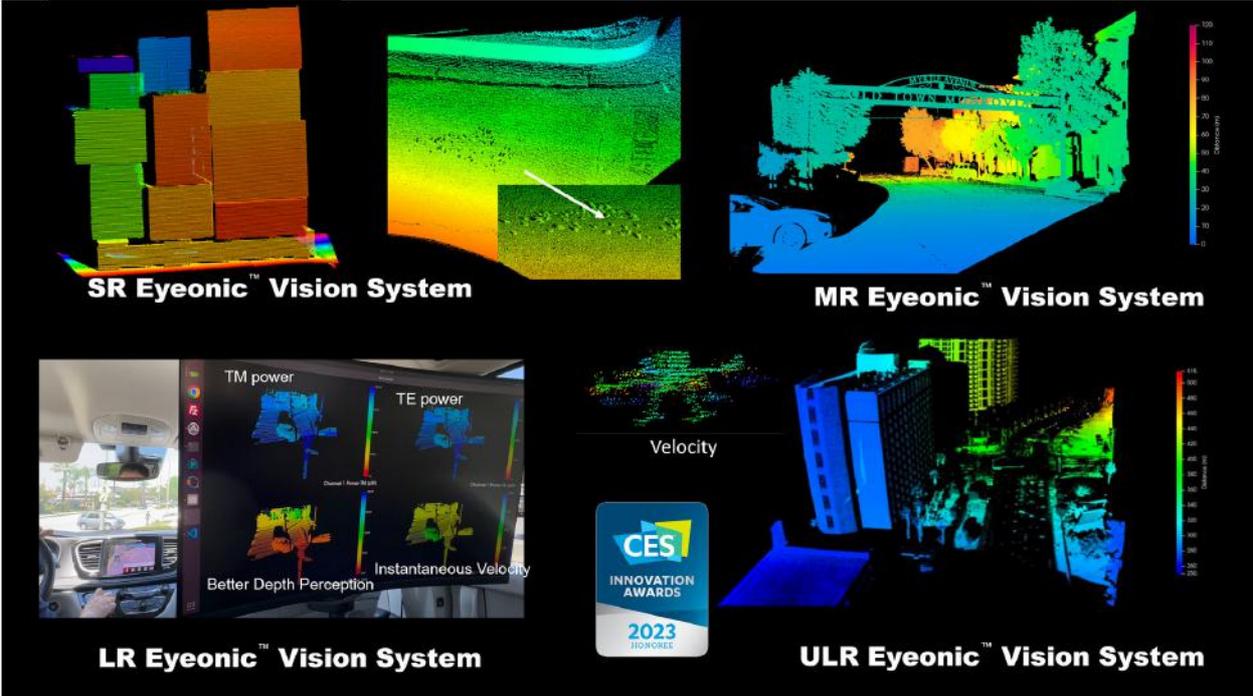
The consultation with the Social and Economic Committee will go on until the beginning of Q1 2024.

During this period, an active search will be conducted for potential buyers.

Driver Assistance News

Four New FMCW Lidar Vision Sensors from SiLC

DRIVER ASSISTANCE NEWS



German silicon photonics specialists SiLC have launched four FMCW lidar sensors covering everything from short distances to over 1,250 metres and suited for a wide range of applications.

The short-range system is designed for vision detection up to 50 m to support AI machine vision tasks requiring high precision, such as pallet and truck loading or product inspection. The medium-range system is for up to 150 m, and comports with home security and factory automation applications. The long-range system sees up to 300m, and is tailored for ADAS and autonomous-vehicle applications. And the ultralong-range system sees out to over 1,250 m; it's intended for drone tracking, perimeter security, and airplane ground control.

So far, SiLC are the only company to offer a chip-integrated FMCW lidar solution, which is critical for machine vision to emulate the human eye.

Mobileye-Valeo Imaging Radar for Autonomous Driving

DRIVER ASSISTANCE NEWS



Mobileye and Valeo have been working together since 2015. In a new partnership, they aim to advance the development of software-defined imaging radar systems. The imaging radar system will provide a foundation for more advanced hands-off ADAS solutions and eyes-off capabilities for automated driving on highways and urban roads. Mobileye's imaging radars feature a MMIMO (massive multiple-input, multiple-output) antenna design, a high-end radio frequency design developed in-house, and high-fidelity sampling. This is said to enable precise object detection and higher dynamic range. With its integrated system-on-chip design and algorithms for interpreting radar data, the imaging radar system provides a detailed, four-dimensional image of the environment up to 300 m away. With a 140° view field at medium range and 170° at close range, the radar is said to enable more accurate detection of pedestrians, vehicles or obstacles.

To meet automakers' latest and most stringent requirements, Valeo will integrate into their automotive software and hardware radar solutions Mobileye's imaging radar technology and its chipset-integrated software and algorithms. These include functional safety, cybersecurity, high-speed communication with vehicle networks, electromagnetic robustness, and validation of overall system performance and durability over the life of the vehicle. Valeo also manufacture the imaging radar systems.

Mercedes: L3 AD tech in California and Nevada

DRIVER ASSISTANCE NEWS



Mercedes-Benz said it will launch its Level 3 automated driving technology in the Western U.S. in the fourth quarter.

The service, approved for use in California and Nevada, will initially be available in a limited number of Mercedes' flagship electric EQS sedans. Next year, Mercedes will expand the Drive Pilot technology to its gasoline-powered S-Class sedan.

Drive Pilot will be available as an annual subscription, priced at \$2,500 in the first year.

Mercedes' Drive Pilot system allows the car to take control of driving functions under certain conditions, freeing the driver to do other things, such as answering emails.

But the system can ask the driver to take control at any time, a prerequisite for Level 3 autonomy. If the driver does not respond within 10 seconds, the car will come to an emergency stop.

Level 3 on the SAE International scale is approved to operate on highways at up to 40 mph, meaning its primary use would be in congested traffic or traffic jams.

Drive Pilot uses radar, lidar, cameras, ultrasound and moisture sensors to provide data on road conditions to vehicle computers. It controls speed, braking and lane position.

In May, Mercedes began offering Drive Pilot, the first Level 3 autonomous driving system approved for European public roads, as an option on S-Class and EQS models.

Mercedes Benz USA CEO Dimitris Psillakis described the technology as a "game changer." Drive Pilot "reinforces our intention to lead in safety and technology while giving precious time back to our customers during heavy traffic situations," Psillakis said in a statement.

General News

More than 50 EVs Planned for US Launch in '24

GENERAL NEWS



ACURA ZDX



CHEVROLET BLAZER EV



MERCEDES EQB



KIA EV5

EVs still account for a small fraction of sales today, but automakers are about to launch scads of BEVs. Here's a list of new EV models expected to launch in the US and Canada over the next 15 months:

- Acura ZDX
- Audi A6 and Q6 e-tron
- BMW i5 and i7
- BrightDrop Zevo 400
- Buick electric crossover (maybe)
- Cadillac Escalade IQ and Celestiq
- Chevrolet Blazer, Bolt, Equinox, and Silverado
- Dodge Challenger and Charger
- Fiat 500eBas du formulaire
- Ford Mustang Mach-E
- GMC Sierra
- Honda Prologue
- Hyundai Ioniq 5 and Kona Electric
- Jeep Recon and Wagoneer S
- Land Rover, Range Rover and Rover Sport
- Lucid Air and Gravity
- Mercedes-Benz eSprinter and EQB
- Mini Cooper EV
- Polestar 3 and 4
- Porsche Macan and Taycan
- Ram 1500 Rev and ProMaster
- Rivian R1S and R1T
- VinFast VF 6, VF 7, and VF 9
- Volkswagen ID.Buzz, ID.4, and ID.7
- Volvo EX30 and EX90

Renault, AVSimulation Innovate in Immersive Simulation

GENERAL NEWS



Renault Group have collaborated with AVSimulation to inaugurate a pioneering immersive simulation centre at the Technocentre of Guyancourt in France. The facility is dedicated to driving and immersive simulation.

Central to the whole thing is ROADS, the Renault Operational Advanced Driving Simulator. With its extraordinary dimensions and capabilities, it takes simulation to new heights by enabling a 360° immersive experience, blending the physical and digital realms seamlessly.

ROADS accurately reproduces the dynamic behavior of any vehicle under diverse conditions such as road types, traffic density, interactions with other vehicles, altitude, weather, luminosity, and more.

The integration of the digital twin ensures a comprehensive evaluation of vehicle behavior, performance, safety, and driving aids at any and every stage of development.

AVSimulation, leader in automotive simulation, build advanced simulators and develop a virtual reality software called Scanner, which simulates traffic, terrain, vehicle dynamics, autonomous traffic, pedestrians, feedback.