

Tue, 26 September
2023
Weekly Newsletter


Lighting & ADAS

NEWSLETTER #822

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



Editorial

At ALE And ISAL, DVN Study On The Horizon

As I wrote in your DVN newsletter last week, the whole team of DVN experts are working hard to develop and perfect the 6th DVN Study, to be published 1st November. Most of them, led by Wolfgang Huhn, Paul-Henri Matha, Michael Hamm, will take the ISAL opportunity to get the latest information concerning ADB and its extension to light projection by following the lectures, visiting the exhibition booths, and interviewing top experts.

This great DVN Study will present all the pertinent information concerning the status and the development of technologies, functions, market perspective, regulation, gleaned and curated from more than 20 interviews of car makers, suppliers, regulators and test houses, and scientific institutes, from the last DVN workshops and symposiums, from the last regulations meetings, GTB, SAE and all around the world.

The primary main objective of this DVN Study is to provide a cutting-edge resource for experts throughout the relevant sectors to learn of the latest innovations, products, and regulatory decisions. This, like all five previous DVN Studies, is a work of information only DVN can provide, from our expert knowledge and the expertise of our worldwide network of subject matter specialists. You won't want to miss it!

Sincerely yours


DVN CEO

In Depth Lighting Technology

Shanghai ALE Shows Fast Progress



Dr. Wolfgang Huhn, DVN Senior advisor

The ALE, the 18th Auto Lamp Exhibition and congress in Shanghai Anting, attracted last week over 30,000 people who could visit more than 200 booths for lighting, cockpit, and controllers. Part of the crowd attended the presentations in the two parallel forums, for lighting and cockpit. The two-day conference was held in Chinese language with simultaneous translation. DVN was present with two speeches, one by Paul-Henri Matha and one by Wolfgang Huhn, who is also a member of the event's scientific committee and who was chairman of the morning of the second day together with Ms. Qiong Chen from Audi China. The conference chairman and organiser was He Yuntang from CATARC, who did a great job in leading such a huge event.

The Chinese vehicle lighting industry has a lot of new players, compared with the pre-Covid times. Together with the many new Chinese electric car makers, the lighting suppliers number grows. The following is to give an impression of the event, but it is far from being complete. Leading international suppliers Forvia Hella, Valeo, Varroc, ZKW, and AMS Osram were present with big booths full of high-tech innovations. The pictures here show examples mainly of the local Chinese tier-1s. The variety of products, the fast development and the courageous approach of the manufacturers sometimes makes one speechless!

It comes as no surprise that all OEMs and suppliers showed the latest technologies like microLED and DMD headlamps as well as rear lamps using miniLED displays or high segmented OLEDs.

AVATR car's thousand-pixel display, located directly under the front screen, from Liaowang Automotive. It's in production now.



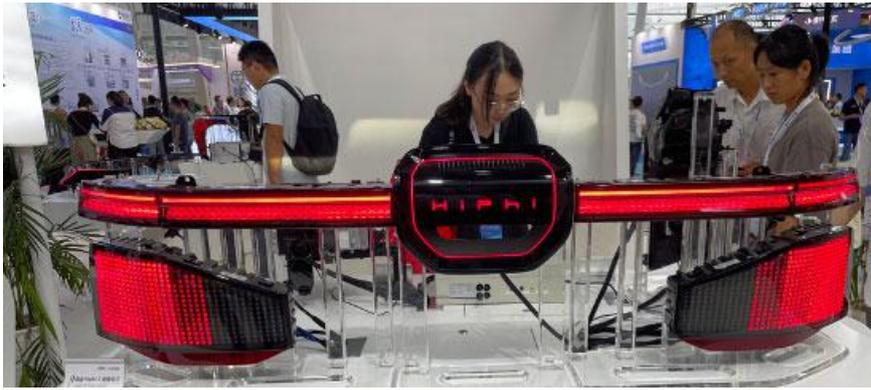
Mind's rear display lamp (preview of a serial car project) with over 1,000 individually-addressable LEDs.



Yeolight's white OLEDs on glass substrate and OLEDs on plastic film. Even a multi segment touch-OLED was shown "We have no idea what it is good for but probably someone will find it out" said Xian Bin from Yeolight.



HascoVision's HiPhi rear lamp set



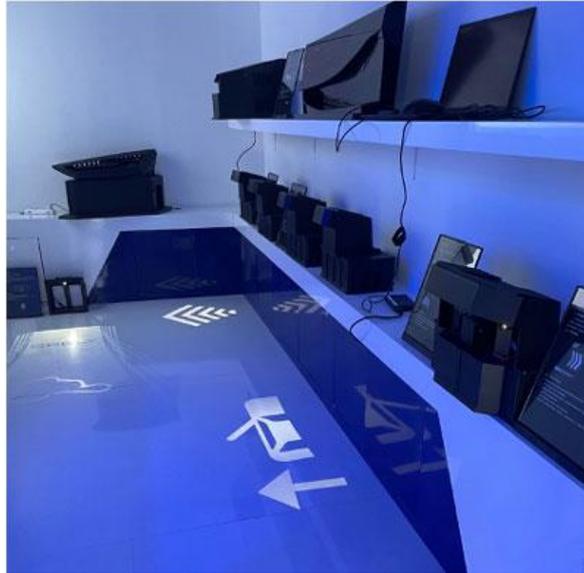
XingYu's VW ID7 rear lamp



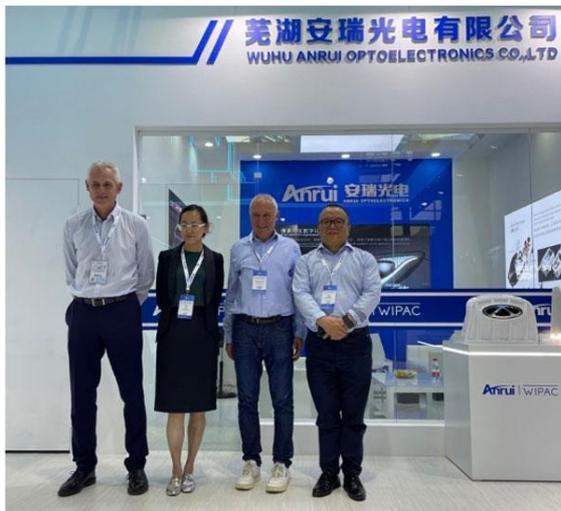
Modules by Enor, the sub-supplier of many tier-1s



Below, are ground projector technologies from **Seekin**, who showed a full vehicle lighting product portfolio.



Other pictures



Sven Dollmann, Qiong Chen, Wolfgang Huhn and Anrui Wipac CEO Eric Sun



Conference session chair team Audi's Qiong Chen and DVN's Wolfgang Huhn



Liowang Automotive management team with W. Huhn and Lync&Co's Maggie Wang



Dr. Huhn was appointed as Visiting Professor

Lighting News

Ams OSRAM to Get Millions in Funding

LIGHTING NEWS



AMS Osram CEO Aldo Kamper (left) with visiting VIPs

The German federal government and the State of Bavaria are investing in the development of novel optoelectronic semiconductor technologies in Regensburg with IPCEI funding (Important Projects of Common European Interest). Subject to the final grant agreement, the company will receive over €300 million in funding over the next five years—part of important investments by ams OSRAM in the Regensburg site for development of future chip technologies. It will create 400 new high-tech jobs and support the expansion of research, development, and production at the site.

Politicians, researchers, and associates visited the ams OSRAM site, including Regensburg Mayor Gertrud Maltz-Schwarzfischer. CEO Aldo Kamper said, “By expanding our development activities in the field of optoelectronic semiconductors, we can create room for innovation and accelerate the time to market for our products (...) our investment is a clear commitment to Regensburg as an industrial hub, Bavaria as a high-tech location, and Europe as a hotbed of innovation. High tech light from Regensburg belongs to the city like St. Peter's Cathedral and the Old Stone Bridge. Here we create new, energy-efficient products and production processes to drive digitalization and thus support the European Green Deal and the autonomy of Europe in the field of semiconductors. In line with our future-oriented 'Re-Establish the Base' program, we will continue to build on ams OSRAM's market-leading core competency and shape the future of the semiconductor market from this Bavarian city”.

A Citizen Barks About Glare: Misfire Amidst a Toxic Mess

LIGHTING NEWS



Analysis by Daniel Stern, DVN Chief Editor

A lighting non-expert sent me an e-mail a few months ago, and shared his pet theory with me: noncompliant headlamps are rampant on American roads, he said; they put out many times more glare than is allowed. He'd found a photometric table from FMVSS 108 and interpreted it as limiting maximum intensity to 20,000 cd anywhere in the beam, and because he's seen readings much greater than that with his handheld light meter, he is sure new vehicles are coming with illegal headlamps. Automakers are cheating, he says, just like they did in Dieselgate, and nobody's stopping them.

Over the course of 22 emails, I did my best to educate the guy. I sent him scads of relevant research and explained it to him. I showed him how to correctly interpret the photometric tables. I answered many questions: yes, headlight glare is real. No, it's mostly not caused by the light colour. Yes, we have a self-certification system in America. No, that doesn't mean automakers are just doing whatever they want and lying about it. No, noncompliant headlamps are almost nonexistent on new vehicles. Yes, the real main cause of headlight glare on the road really is misaim.

He doesn't believe me, and so he set out to 'prove' himself right (and me wrong) by 'measuring' the headlamps on cars he finds especially offensive, like the Tesla Model 3. Those words are in sneer quotes because he's waving a handheld luxmeter around in front of randomly-aimed lights on a random car on a random road. I explained goniophotometry, and his response was "Goniometer is just another word for a protractor; you can buy them for seven dollars. FMVSS 108 doesn't require a photogoniometer, so I'm using trigonometry to know where to put the luxmeter, and I'm measuring 3 to 10 times the so-called glare limit, there's no way that's just an error caused by my technique". Oh...boy. That density of misinformation requires something like a diamond-tipped drill bit to penetrate, and even then there's no guarantee. I had to give up.

So why did I give him [so much time and effort](#)? Why did I even bother replying in the first place? Partly in hopes he'd see the light, if you'll excuse me for putting it that way, and partly in penance for having run my own mouth at high volume decades ago as a 20something when I thought I knew it all about headlights, but what I really had were pet theories, guesses, preferences, and opinions—they certainly felt like knowledge to me! With a great deal of studying I replaced ignorance with knowledge, and now I try to pass that along where and when I can.

But this particular guy has chosen to carry on in his ignorant certitude. He's sure he's found a vast glare-conspiracy, and he's found a comfortable echo chamber (with chapters in America and Britain, as [described](#) in DVN [previously](#)). I guess in his mind I'm in on the conspiracy. A pity, because now he'll join the other loud nuts and nitwits in poisoning any chance of really getting headlight glare under control on this continent through legitimate technical-legislative-regulatory channels. And that leaves illegitimate channels for dealing with it, such as the glare-revenge [device](#) I reported on in [these pages](#) nearly a decade ago.

Where does that trend end, then? That's an uncomfortable question to ask about the United States, where people get shot to death for perceived offences much smaller than headlight glare.

Distinctive Lights on Nio's New EC6

LIGHTING NEWS



On 15 September, Nio launched their new EC6 'electric coupe SUV' in China. Its makers boast of the car's 'innovative family design language, ultimate performance and leading intelligence to deliver beyond-expectation mobility experience to families and individuals who would like more inspirations in their life'.

The DRLs are designed to be dimensional with 30-mm ultra-wide crystal for better visual effect. An innovative production process eliminates the black edges on top of the lights. Adaptive Driving Beam is standard equipment, and the car's 'Aquila Super Sensing' system has the lidar and front cameras automatically detect road conditions, providing input to the lighting system for precise beam distribution.

North American Stellantis EV Gear-Up

LIGHTING NEWS



Dodge Charger Daytona SRT concept

Stellantis are gearing up to add EVs to their North American brands. Dodge's preview of electric-powered muscle cars came last year with the Charger Daytona SRT concept. Now Jeep is introducing the Wrangler-inspired Recon and Wagoneer S, both fully electric, and a PHEV Wagoneer is also planned.



Chrysler Airflow concept

Chrysler, on its way toward being an all-electric brand in five years' time, is going a little slowly; the first Chrysler EV, a crossover based on the Airflow concept, isn't scheduled to arrive until 2025.



Ram 1500 Rev

Ram will get its first EV this year when an electric version of the ProMaster van arrives, and that will be followed by the electric 1500 pickup next year: the Ram 1500 Rev will go into production in late 2024.

New VW Tiguan Has Upgraded Tech

LIGHTING NEWS



The Tiguan compact SUV is VW's № 3-selling model in Europe after the T-Roc and Golf. The new Tiguan has light strips across the front and rear of the car, bringing the look of the Tiguan in line with more recent designs. The car can also be specified with high-definition matrix LED headlights.

Inside, VW—having previously backtracked to real buttons after getting an [earful](#) from buyers frustrated with an all-controls-on-the-touchscreen interior—now are going back to touchscreens. They've moved features including heating and ventilation controls onto the 15-inch dashboard screen. Like the VW Passat, the new Tiguan runs what the automaker calls its MIB4 (modular infotainment matrix 4th generation) digital architecture for its cockpit and central screen displays.

Driver Assistance News

Hesai: Lidar Tech Gaining Traction

DRIVER ASSISTANCE NEWS



Lidar technology that drives fully autonomous vehicles and ADAS continues to advance, spurred by improvements in price, performance and reliability.

Here we present takeaways of an Automotive News interview with Hesai VP of Sales Bob in den Bosch:

"Lidar technology is a critical safety and navigation component for the future of all vehicles. The autonomous vehicle market is continuing to grow, as we see several of our robotaxi and robotruck customers, like Zoox and Aurora, have already started or have plans for commercial operations in the U.S. and around the world. We expect that lidar orders from automotive OEMs will grow into millions of units in the next few years.

"A major push focuses on enhancing the aesthetics of our sensors to better align with the needs of consumers and their vehicle brands. This shift has resulted in reduced sensor size, solid-state sensors and innovations such as moving small new sensors behind the windshield.

"Autonomous vehicles and ADAS markets are growing, and we continue to invest in both. Many of Hesai's most recent technology investments in reliable and low-cost lidar sensor manufacturing at scale, while crucial to the mass ADAS market, are certainly beneficial to robotaxi applications as well.

"Hesai is the first lidar company to ship over 200,000 sensors and has secured more than 11 OEM wins for lidar in ADAS, with 6 OEMs placing large-scale orders this year. Hesai made many investments to lower sensor costs without compromising on performance and reliability.

"Hesai is capable of producing more than one million units per year and has pioneered design improvements that reduce the costs of both producing sensors and delivering them in large volumes. These design improvements include advanced miniaturization, integration of system components and core sensor platforms that can be leveraged and rapidly combined to serve numerous applications".

General News

Mercedes MO360: Digital Twins and Generative AI

GENERAL NEWS



The digital twin in production helps ensure Mercedes-Benz assembly lines can be retooled, configured and optimized in physically accurate simulations first. The new assembly lines in the Kecskemét plant will enable production of vehicles based on the newly launched Mercedes Modular Architecture that are developed virtually using digital twins in Omniverse.

The MO360 production system will enable it to produce electric, hybrid and gas models on the same production lines and to scale the manufacturing of electric vehicles.

The Kecskemét plant is the first with a full digital twin of the entire factory. This virtual area enables development at the heart of assembly, between its tech and trim lines, and there are plans for the new Kecskemét factory hall to launch into full production.

Omniverse allows Mercedes-Benz to interact directly with suppliers, halving coordination processes. Using a digital twin in production doubles the speed for converting or constructing an assembly hall, while improving the quality of the processes.

The Rastatt plant is being used to pioneer digital production in the paint shop. Mercedes-Benz used AI to monitor relevant sub-processes in the pilot testing, which led to energy savings of 20%.

Chinese Automakers Look to Tackle Europe

GENERAL NEWS



More and more Chinese automakers are getting ready to pounce on the European market.

Volvo sister company Zeekr EV will be sold in the Netherlands and Sweden, Four more European markets are to follow in 2024. Germany is likely to be among them. By 2026, the brand wants to be represented in most Western European countries.



Leapmotor have been represented in France since this past spring with the T03 small electric car. The C11 SUV and the C01 sedan were also displayed in Munich. Leapmotor have announced the premiere of an EV mid-size SUV, which is to be launched in Germany in 2024.



BYD completely relaunched their company in 2022 with the D9 luxury van, which sold fast and hot in the home market. Now BYD are thinking about launching Denza on the European market as well.



Dongfeng's Forthing 4 van and Forthing 5 SUV, among others, are sold in Germany. The maker have launched their Voyah premium electric brand, as well.



Xpeng vehicles are being sold in Norway. The maker cancelled a planned European market expansion last year, but the G9 SUV and P7 sedan are available for now in Denmark, Sweden and the Netherlands—also soon in Germany.



Chery have a design and development center in Germany; this past Spring they announced a European market launch. This might first involve their Omoda 5 compact SUV, but it will be petrol-powered; an electric model is said to be in the works for later on.



HiPhi announced a market launch in Germany and Norway this past Spring—their original plan was to begin delivering the X SUV and Z sedan in the third quarter of this year.

Hyundai Kona Gets Bigger Space, Batteries

GENERAL NEWS



Hyundai have put bigger batteries in the 2nd-generation Kona and made it more spacious than the previous model, in an effort to keep up its brisk European sales. Hyundai expect to assemble 21,000 electric Konas in Nosovice, Czechia, by the end of this year, with a target of 50,000 in 2024.

In H1-23, the Kona was Europe's best-selling small electric SUV despite a 12-per-cent decline to 17,000, according to figures from market researcher Dataforce.

The Kona was well ahead of the Opel/Vauxhall Mokka-e (14,000) and the Peugeot e-2008 (13,000) during the period, but trailed the overall leader in the segment, the full-electric version of the Volvo XC40, which had 21,000 sales in the first half.