

Tue, 2 January 2024
Weekly Newsletter



NEWSLETTER #836

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

DVN Wishes You A Very Happy New Year 2024!



I and the whole of the DVN team wish you a happy new year's celebration into 2024 and a lot of good things for you, your company, lighting, and (of course) for DVN!

I take time here in this first editorial of the year to remind everyone of everything you get as a DVN member:

Basic Gold membership, for €6,900 per year, brings you:

- 1 individual account on website
- 52 newsletters
- 11 monthly reports
- Access to VOD after each DVN event
- Access to all published reports
- Your company profile in our website
- One free entry to all DVN lighting workshop (2024: Munich, Detroit, Pune, Shanghai)

If you choose the Platinum membership, for €13,800 per year, in addition to the Gold benefits you get:

- 10 individual accounts on the website
- 3 free entries to all DVN lighting workshops

If you choose the Diamond membership, for €19,700, you get:

- unlimited accounts on the website
- 6 free entries to all DVN lighting workshops, with a 25 per cent discount on all your additional tickets for DVN events.

As of today, 2 January 2024, there are 163 active lighting members—a total of 232 including Lidar and Interior subscribers. Last month we gladly welcomed Edag, Lynk & Co, Brightek, Lishui, and Microchip: five vibrant new members demonstrating the attractive value proposition of being a part of this vital, growing community. This is your success, and we thank you again for that.

I wish you again a happy new year 2024, and nice CES 2024 for the people who have the chance to be there. Feel free to meet us in Las Vegas; DVN's **Daniel Stern** and **Wolfgang Huhn** will be there.

All the best,

Paul-Henri Matha

DVN Chief Operating Officer and Lighting General Editor



In Depth Lighting Technology

GTB Expert Committee 134th Session



From 28 to 30 November 2023, GTB held the 134th session of their Committee of Experts (CE) in an online-only meeting format, held in three 2-hour sessions.

Two main topics were on agenda, relating to road projections items: adaptive predicted trajectory (light carpet), and SRP—signal road projection for turn signals and reversing lamps.

Discussions during the session on both topics were not conclusive, and two ballots were launched to decide whether to present the related GTB proposals to the 90th GRE session. Unfortunately, the results of both ballots were negative, so the presentation of these proposals to GRE is postponed. The involved GTB Working Groups will resume their discussions to refine the proposals so as to hopefully approve them at the next CE session.

Several other topics were also discussed, mainly devoted to corrections and to procedural questions in some UN Regulations. Those topics have been discussed and approved and they will be sent to the GRE Secretariat for discussion in the 90th GRE session, to be held in April.

The most interesting one of these is a change to UN R48 (06-, 07-, and 08-series of amendments) to clarify the application of extended installation height of passing-beam headlamps (up to 1.5 m) and vertical orientation limits, for not just N3G-class but also M2G, N2G, and M3G-class vehicles—this change will align this requirement to the same one in the 09-series of amendments.

Other technical items were also examined, like improved definition and determination of the “apparent surface” of a lamp, updated requirements for flashing side marker lamps, new approaches on lamps in the shape of bands or stripes, and others; all these items were referred to the pertinent WGs for resuming the discussion and finalize the proposals.

Information was provided about the state of the art of the Headlamp Safety Performance Rating (HSPR) and the accessibility to a web-site hosting all the reports and assessment of the tested headlamps.

Finally, the committee approved the plan for forthcoming GTB sessions:

Intermediate WGs and TFs session: Den Haag (Netherlands), 19-23 February. The CE agreed to devote a full-day for a forum on environment and sustainability as applied to vehicle lights, on Wednesday 21 February;

135th plenary session: Charlotte (North Carolina, USA), 3-7 June 2024;

Intermediate WGs and TFs session: to be decided;

136th plenary session: Salzburg (Austria), 18-22 November 2024 (to be confirmed by the Austrian hosts);

137th plenary session: Spain confirmed its willingness to host this session, in the Spring of 2025; more information should be provided during the 135th session.

Lighting News

Xiaomi's SU7 lighting details

LIGHTING NEWS

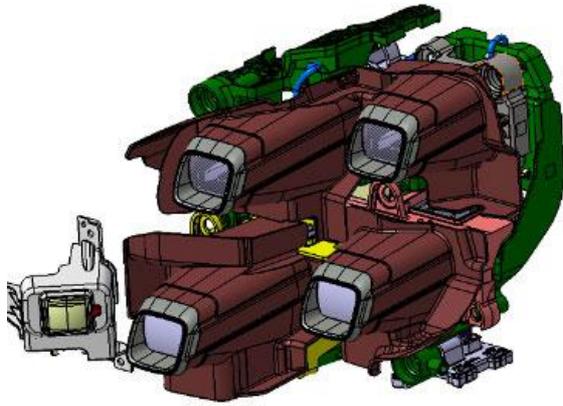


DVN team took time this week to interview Hascovision about Xiaomi SU7 headlamp and rearlamp design and technology.

SU7 has adopted quite a few new technologies, and especially, Lighting technology is impressive.

Headlights are similar in shape to water droplets and inspired by nature. The lamp takes the smoothness and aesthetic feeling of water droplets as the design soul, which brings unique visual charm to the vehicle. Equipped with 4-lens and **12-pixel matrix ADB function**. It can be intelligently adjusted according to the traffic conditions change, providing excellent lighting performance when driving at night. Ultra-wide lighting over 160-degree (**more than 80-degree one side**) expands the lighting range and ensures that the road is clearly visible. The assistant bending light automatically illuminates the inside and outside corners when turning, which greatly improves the safety at night.





Unique lamp design, the famous “mi” symbol is fusion inside styling, with 4 lighting module, 12 pixels ADB, Turn, DRL, Position, three functions are coupled inside one thick wall signal lamp.

The 12 pixels module can also provide **C/V/E AFS scenarios** (Country, City, Motorway). CNCAP and CIIASI lighting performance got excellent score, and it also provides outstanding lighting performance on the road.

2 LB and 2 HB modules with 1 separate cornering lamp module form the illuminating system of the headlight. In order to make the four modules lighting together, Xiaomi and Hascovision teams customized high beam lit appearance. When the low beam is on, the high beam module will light up with low power avoiding glare, giving the user a feeling that the four modules are holonomic. The cornering lamp, through the special optical design and assembly process, can perfectly match the LB and HB even without separated aiming, providing users with a good night driving experience.

The suspended signal function of the headlamp gives the amazing feeling. Two long thick walls and more than 30 dual-light LEDs make up this signal lighting system, the homogeneous and bright appearance gives expression to unique visual feeling.



The taillight is shaped like a halo, inspired by Saturn's rings, giving the car a sense of the future. The halo taillight strip is 2.48m long and consists of over **300 ultra-red LEDs** of **632nm** grade, compared with the ordinary super red, the super red light of the wavelength grade gives more pure vision, which produces a very powerful light effect, making it easier for other drivers to notice SU7. In addition, the halo taillights are also equipped with intelligent light language function, providing a variety of welcome modes, and drivers can customize their favorite modes.



C-NCAP Lighting Test Program

LIGHTING NEWS

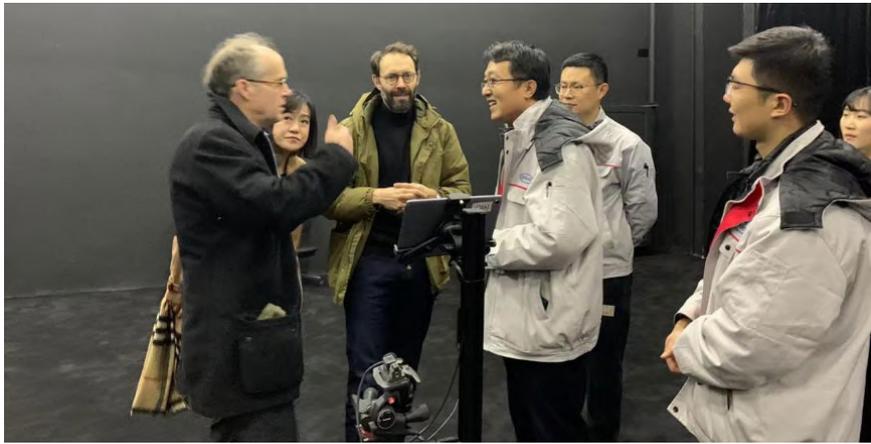


By Paul-Henri Matha, DVN COO and Lighting General Editor

After the Shanghai DVN Workshop, I took time to visit CATARC with LMT to see their lighting installation, used for C-NCAP rating. The meeting was organized by Zhao Zhun and He Yuntang, well known in international lighting community.

The Chinese New Car Assessment Program (C-NCAP) is optimized and improved every three years based on the actual road conditions in China. It plays an important role in the Chinese market and promotes the automotive industry's attention and improvement to safety performance. It provides a reference for consumers and motivates car manufacturers to strive for safer and more reliable vehicles, contributing to road traffic safety.

In the 2021 version of the C-NCAP testing procedure, an evaluation item for headlight performance was added for the first time, and it has been running smoothly for nearly two years. During this period, there has been an improvement in the performance and quality of headlamps in China.



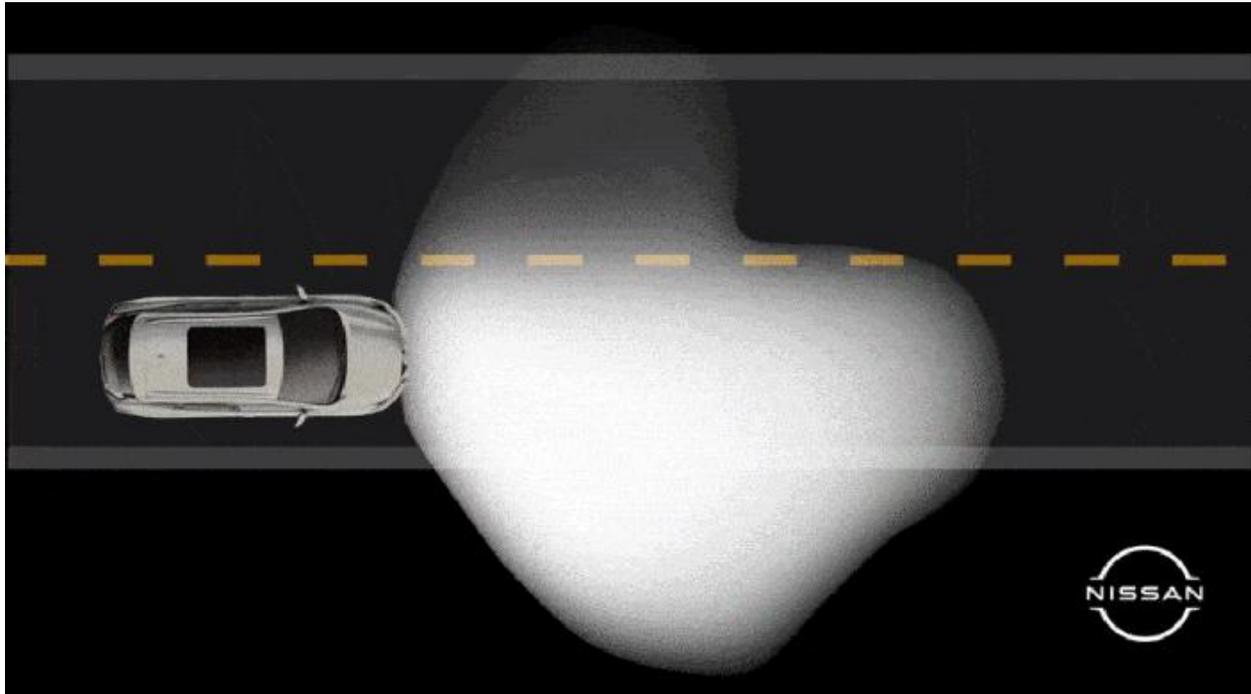
In order to meet the development needs of intelligent and digital automotive lighting, and further improve the safety of road lighting, the upcoming 2024 version of C-NCAP protocols will evaluate ADB, the initial position (aim) and sharpness of the cutoff line for low beams, and other lighting items.

In C-NCAP 2024, an intelligent headlight testing project was added for the first time, in order to evaluate the road lighting performance and glare of vehicles equipped with ADB functions. In addition, the response time, shielding width, and other factors of the intelligent headlights will also be tested through given oncoming and preceding real driving conditions. Compared with the 2021 version of the lighting conditions, it is more in line with the development of modern intelligent lighting, can help consumers better understand the safety performance of the car, and consider safety factors in purchasing decisions. At the same time, higher safety standards and requirements have been put forward for automobile manufacturers, constantly improving the safety performance of vehicle lighting.

The C-NCAP 2024 test protocol will be officially published in early January 2024 and officially implemented in July.

Nissan Hope to Put ADB on US Cars Soon

LIGHTING NEWS



Brad Chisholm, a Nissan exterior lighting engineer, says NHTSA's sudden publication of their version of an ADB regulation caught carmakers a bit by surprise after over a decade's delay, but Nissan want to put ADB on U.S. models. In the rest of the world, the Nissan Ariya, Murano, and Rogue have advanced adaptive headlamps, but so far only static low and high beams in the U.S. Chisholm says his company hopes to bring adaptive lighting to U.S. customers soon.

Koito in Preliminary Talks with Cepton

LIGHTING NEWS



Koito's board of directors have resolved to start negotiations with Cepton, regarding the acquisition of shares to make Cepton a subsidiary of Koito.

Koito and Cepton have been co-developing automotive lidar since 2018, completed development and preparation for mass production of medium-range lidar, and are currently working on development of short-range lidar in addition to long-range lidar to meet a wide range of automotive needs, from passenger vehicles to industrial, construction, and agricultural machinery.

Cepton's Micro Motion lidar technology, which has no sliding parts, can meet a wide range of needs in the infrastructure field, where high durability is required. Koito and Cepton are working to win market share by developing and expanding sales of products such as the Illumiere moving-object detection system. As the scope of collaboration with Cepton expands in this way, Koito intend to pursue synergies between Cepton's superior technological capabilities and the Koito Group's technologies and expertise accumulated in the vehicle lighting equipment and traffic system businesses.

Aito M9 Launched

LIGHTING NEWS



The Aito M9 faces the world with headlamps which are probably its most recognizable element. They're Huawei Xpixel ones with ADB, AFS, and 'ISD intelligent interactive lights' comprising dense LED light sources under the high/low beams.

Huawei's first 'megapixel smart lighting solution' provides automakers with lights that integrate safety lighting, intelligent driving assistance, and interactive entertainment functions.

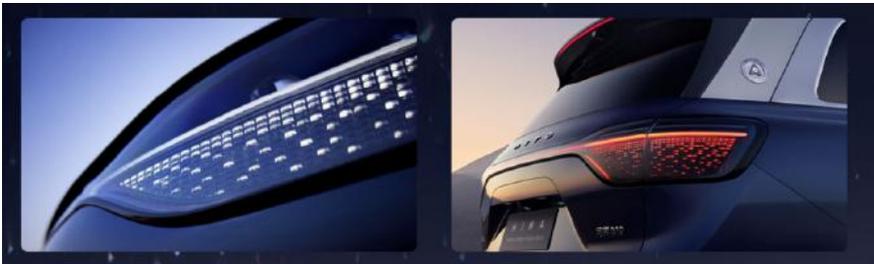
Along with ADB, the lights can be automatically adjusted according to the actual road conditions, and the preset algorithm can adjust the pixel-level brightness, to switch the adaptive mode accordingly. It supports the low-beam enhancement function, which makes the low-beam vision brighter in urban roads and remote villages, aiding earlier obstacle detection.



The system provides a 'multi-scene smart lighting language function', which can be freely adjusted according to user preferences—for example, the music rhythm function is said to add more vitality to the atmosphere in outdoor camping scenes where it is imperative that placid dark be vanquished by thumping music and flashing lights.

More prosaically, the system includes a state-of-charge indicator light function.

The tail of the M9 echoes the front face, with an integrated spoiler rear wing and a full-width fine line of red light.



Pre-production Zeekr M-Vision spotted

LIGHTING NEWS



The Zeekr CM2E was spied on in camouflage. But we can immediately highlight its front end, which has the Zeekr Stargate light band first adopted by Zeekr 007.

This stargate light band will be shown by Valeo during CES2024 and all details will be explained during DVN Munich event in February 26th and 27th by Head of Zeekr exterior design, **Jon Radbrink**.

According to [carnewschina.com](https://www.carnewschina.com), Zeekr CEO An Conghui mentioned they've spent over 1 billion yuan to develop this element.

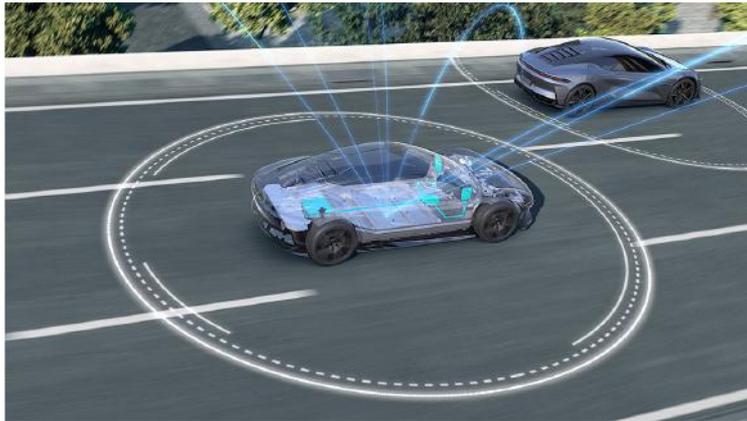


About rear, we can underline a single LED taillight strip and a roof spoiler from the back.

Driver Assistance News

BYD received an L3 autonomous driving test permit in China

DRIVER ASSISTANCE NEWS



BYD received a testing license for level 3 (L3) autonomous driving on high-speed roads. The company said they were the first automaker in China to obtain the permit.

In the press release, BYD said that they received the permit on July 21 in Shenzhen; however, they communicated it only as of today. BYD didn't clarify why.

Recently, lots of companies received L3 testing permits in China, including some foreign brands:

- Jiayu
- Avatr
- Mercedes-Benz
- BMW
- Arcofx
- Changan's Deepal
- SAIC's IM

BYD has historically been more focused on hardware than software. Wang Chuanfu, BYD's founder and CEO, is a famous cost cutter, so inside their cars, you won't find dozens of screens, but rather lots of physical buttons; also, don't expect any high-end ADAS, but rather quality battery (BYD is originally a battery maker) and fair enough price. BYD is traditional, even in its sales channels. No direct sales models with an online store, but a conventional dealership network.

This is now changing. BYD launched premium brands YangWang and Fang Cheng Bao, tapping the direct sales models and pushing hard into the R&D of autonomous driving systems. They started cooperation with Baidu and VW-backed Horizon Robotics to develop autonomous driving SW and, in May, announced DNP ADAS to compete with Tesla's Autopilot. In July, it introduced the "God's Eye" independent driving system, and the first car to feature it was the Denza N7 SUV.

General News

Geely-Baidu Jiyue 07 Unveiled, Wins Red Dot Award

GENERAL NEWS



Jiyue was founded as Jidu in 2021 as a joint venture between Geely and Baidu. But the Chinese Government refused the JV permission to go into mass production, so the company was restructured. Its name was changed to Jiyue, and Geely now hold a 65-per-cent stake as well as responsibility for manufacturing. Baidu are responsible for software, ADAS, and connectivity. The first Jiyue model is the 01 SUV. This year, a second model will launch: the 07.



The 07 'liftback' has received a Red Dot Design Award, making it one of 17 models to win the plaudit—including the Peugeot 408, Neta S, Genesis G90, and Deepal SL03. The Jiyue 07 also received the iF Design Award.

The 07 stands on the SEA architecture, which also underpins every Zeekr model, the Polestar 4, and the Volvo EX30. Its powertrain is similar to the Jiyue 01. The entry-level version has a single 200 kW motor and a 71.4-kWh LFP battery. The 4WD model offers 400 kW and a 100-kWh NMC pack.

The self-driving system relies on cameras and radars—no lidar. In China, it will rival the Xiaomi SU7, Tesla Model 3, BYD Han, and other such models when it goes on sale in mid-2024.

Dayun's Yuanhang H8 pure electric SUV enters market

GENERAL NEWS



Dayun Group's Yuanhang Auto launched its [H8](#) all-electric six-seater SUV. A total of five models were launched with a price range of 349,800 – 559,800 yuan (49,200 – 78,800 USD), available in rear-wheel drive and four-wheel drive. The H8 is the second model launched by Yuanhang after the [Y6](#) all-electric sedan.



All Yuanhang H8 models come standard with level 2 advanced driving capabilities, which can realize traffic jam assist, highway driving assist, lane change assist, lane center keeping, full-speed range adaptive control, rear cross-traffic alert, and automatic emergency braking.

In the current market, electric SUVs with similar price points to Yuanhang H8 include the AITO M9, NIO ES8, and Audi Q5 e-tron. With limited brand awareness, can Yuanhang H8 stand out in the market?

Xiaomi's First Car Unveiled: The SU7

GENERAL NEWS



Xiaomi have released two versions of their first car, the SU7 and SU7 Max, positioned so as to compete with Porsche Taycan and Tesla Model S in the Chinese market.

The SU7 base model is a rear-drive car with Xiaomi's in-house developed 220-kw, 400-Nm V6 engine. It is said to have a 0-100 km/h time of 5.28 seconds, and will have a 73.6-kWh battery, providing a 668-km range under the CLTC (China Light-Duty Vehicle Test Cycle) standard.

The automated driving system Xiaomi Pilot is powered by two Nvidia Orin-X chips with 508 TOPs computing power. Xiaomi Pilot ADAS will receive input from **one lidar, three millimetre-wave radars, 11 HD cameras, and 12 ultrasonic radars**. The autonomous driving system includes highway driving, self-parking features, and car summoning. City self-driving will be available by the end of 2024 in over 100 cities in China.



The battery can recharge to 390 km's capacity in 10 minutes (220 km in 5 minutes; 510 km in 15 minutes). The base SU7 price should start under C¥300,000 (\$42,500). No word on when deliveries will start, but Jun says production will begin in H1 2024.

According to Xiaomi, the SU7 has a drag coefficient of only 0.195, the lowest among production vehicles. Lei Jun highlighted that the lidar, which sits on the top of the windshield, was inspired by the smooth design of a pebble. However, the model in the video showing the SU7 reaching 0.195 Cd is the version without lidar.

Before becoming one of the largest consumer electronic companies, Xiaomi were originally a software developer creating a modified Android ROM called MIUI. HyperOS will now replace MIUI and become an operations system for almost all gadgets in the Xiaomi ecosystem, including cars. They announced their car-making plans in March 2021, when company founder and CEO Lei Jun said Xiaomi would invest C¥10bn (\$1.4bn) into their car manufacturing business. Now, Jun says, "Xiaomi wants to become the top 5 car company in the world in the next 15-20 years".

BYD Pick Hungary for European Factory

GENERAL NEWS



Chinese automaker BYD have been looking for a year to build a factory in Europe, and have chosen the Hungarian city of Szeged—a town of 160,000 inhabitants in the south of the country, near the borders of Romania and Serbia.

BYD say the factory will create thousands of jobs and be 'at the cutting edge of technology' in producing electric and hybrid vehicles.

VW to Reduce Payroll, Development Time

GENERAL NEWS



The Volkswagen brand will cut “indirect personnel costs” by 20 per cent by 2026, according to human resources director Gunnar Kilian. VW's management are working to figure out where to find the €10bn in savings, and works council president Daniela Cavallo says negotiations are wrapping up.

The first structural lever will be that of the early and voluntary retirement of baby-boomer-aged workers, who represent the largest age group at Volkswagen. Around 3,000 people born in 1966 are already affected by partial retirement; the following two age classes are a little less numerous. In total, between 4,000 and 6,000 eliminated positions could go unreplaced, according to the German press.

Management's objective is to boost Volkswagen's margins from the current 3 per cent to 6 per cent, Pressure is being exerted by the volumes sold being no longer enough to fill the factories and Chinese competition becoming stiffer—particularly in the Chinese market, which accounts for 40 per cent of VW sales.

With current structures and costs, “the situation is critical,” said VW CEO Thomas Schäfer, addressing his employees at the end of November. “We are no longer competitive.” He says the purchasing department will have to improve its performance, which will increase pressure on German automobile subcontractors already in dire straits.

Volkswagen is expected to accelerate the development pace of new models, from 50 to 36 months, and have already clearly reduced their ambitions at home in Wolfsburg by abandoning their flagship “Campus Sandkamp” project, a new €800m factory dedicated to EVs.