

Tue, 23 January 2024
Weekly Newsletter

DVN
Lighting & ADAS

NEWSLETTER #839



New **SYNIOS® P1515** family of automotive signaling LEDs produce extremely homogenous and smooth appearance in RCL applications

am OSRAM

Editorial

Soon: DVN Munich Event, 27-28 February

A promotional banner for the Munich Workshop event. The banner features the DVN Lighting logo, the event title "Munich WORKSHOP 27-28 February", and a list of 12 OEM speakers. The logos of the speakers are arranged in three rows: Audi, ZEEKR, NIO, Ford; Volvo, BMW, Mercedes-Benz, Lotus, and a diamond-shaped logo; MINI, HUMAN HORIZONS (with Chinese characters 华人运通), and Scania.

DVN
Lighting

Munich
WORKSHOP
27-28 February

12 OEMs Speakers

Audi ZEEKR NIO Ford

Volvo BMW Mercedes-Benz Lotus

MINI HUMAN HORIZONS SCANIA

The Munich DVN Event, with the theme **Design and Lighting: Technology & EE Architecture to Support New Mobility**, will take place at the end of next month. The whole DVN team have worked hard this week to finalise the docket for this high-content, two-full-day event. We received so many excellent lecture proposals that it was difficult for me and the team to select!

For me, this is the first time setting up the complete program, and I'm trying out some

thoughtful changes. I have participated in a lot of these kinds of events, as attendee or lecturer, and I wanted to try something new—a bit more interactive, a bit less segmented. Perhaps I changed too much, perhaps you will feel like a marathon runner (equivalent to a CES participant!), but let's try it out and see; I will be eager for your feedback afterward.

Rather than a conventional event with lectures from automakers, tier-1 suppliers, and then tier-2 suppliers, we have decided to define different sessions with specific themes: Design, Sustainability, EE Architecture, ADB, Interactive Social Display (ISD), and front & rear fascia.

We have selected three keynotes with high interest for our lighting community:

- **Mark Stanton, Human Horizons CTO and cofounder.** One of the first Brand with ISD on the market (perhaps the first one).
- **Craig Dent, Designer, cofounder and CEO of RIDE** to talk about all urban mobility and lighting.
- **Dirk Linzmeier, CEO of TTTech Auto** to talk about the impact of SDVs on the lighting community.

Between sessions, **Yole** and **Standard and Poor's** will give us their market insights about vehicle lighting and semiconductors.

We will close the event with a **designer round table**, including exterior and lighting designers.

During the first day, for the first time at a DVN event, we are organising a **CEO round table** with ones of the biggest lighting tier-1s.

Five weeks now before the event, we have already booked 25 expo booths. **400 attendees are expected.** Watch for more details soon about the CEO and Designer round tables—the cherries on top of the cake of our event.

It will be the biggest event we have ever done. Register now : [DVN Munich Workshop - Feb. 27-28, 2024](#) - [DVN \(drivingvisionnews.com\)](#)

Hope you will enjoy, Keep in touch!

Paul-Henri Matha
DVN Chief Operating Officer and Lighting General Editor



In Depth Lighting Technology



Official Docket: 30th DVN Workshop at Munich

We are glad to publish today the detailed docket for the Munich DVN Workshop, taking place on 27-28 February at the Hilton Munich Airport hotel.

Day 1, 27 February 2024

7:00 AM: Breakfast

9:25 AM: Start of event

Keynote day 1: Human Horizons · Mark Stanton, CTO:
How Lighting is Being Used in New and Smart Ways to Differentiate Human Horizons Products

Session 1: Design Part I

ZKW · Udo Hornfeck, CTO:

Design and Lighting in the Volvo EX90

BMW-MINI · Tabea Schlürscheid, PhD Student, and Jörg Kälble, Head of Lighting:
The Different Faces of the MINI Countryman – Light as a Key Factor

Renault · Francois Bedu, Lighting Expert:

R5 Lighting

Scania · Ben Huber, Head of Visibility & Bodywork Systems:

Automotive Lighting from a Truck's Perspective

Ford · Anette Sawonski, Exterior Lighting PMST Leader:

Smart Lighting on Commercial Vehicles and How EE Architecture can Simplify Lighting Controls

Expo Booth Pitches

Lunch

CEO Round Table

The automotive Industry in transformation; what opportunities and risks do you see for our business?

Session 1: Design Part II

BMW · Jan Urbanek, Lead Rear Lighting Concept Integrator:
New Laser Applications in Exterior Lighting—the Laser-Wire Rear Lamp of the BMW M4 CSL

Lotus · Frank Langkabel, Exterior Lighting Technical Lead:
From Eletre to Emeya—Following Our Evolution in Lighting

AMS Osram · Manuel Walch, Product Marketing Professional:
Thinking Automotive Area Lighting Outside the Box

DBM · Mirco Goetz, R&D Vice President:
Engineered Light Diffusers Designed for Injection Molding

LG Innotek · Hyun Sung, Global account manager - Europe:
NEXLIDE, “Dynamic Lighting for Future, from Single Pixel to Large Area.”

Session 1: Design Part III

SL Corporation · HyeongDo Kim, optical technology lab:
Benefits of MLA Headlights

Focuslight Technologies · Dr. Patrick Heissler, Chief Commercial Officer:
A path Towards a Modular, Customizable Headlamp Platform

Mobis · Naram Jun, Principal Research Engineer:
Introduction of New Optical System Replacing MLA

AG Optics · Jacob Ryu, Managing Director:
Laser Based Ultra Short Throw Light Engine for Dynamic Projection

Oledworks · Michael Boroson, CTO:
OLED Technology for V2X in Support of Future Mobility

Yeolight · Xianbin Xu:
Trend and Challenge of Automotive OLED Light Source

Session 2: Sustainability

L1 Earth · Sebastien Samuel, cofounder:
How to Tackle Circular Business Challenges in Lighting

Volvo · Hannah Droste, exterior lighting intern:
Comparative Life Cycle Assessment (LCA) for Exterior Lighting

Rise · Ursula Hass, Senior Smart Hardware Project manager:
Bio Organic Electronics

Lumileds · Dr.-Ing. Wolfgang Schiene, Product Management Director:
Luxeon Go Expanded Portfolio, Beyond Reflection Application

Market insight, Standard & Poors · Sascha Klapper, Global Mobility Research & Analysis Manager: *Lighting the Future—a Brief Automotive Lighting Market Outlook in Numbers*

Yole · Pierrick Boulay, Senior Analyst:
Semiconductor Insight for Lighting Industry

Cocktail and car exhibition
Dinner

Day 2, 28 February 2024

8:15 AM: Start of event

Keynote I: Ride · Craig Dent, CEO:
Design Insight

Keynote II: TTTech Auto · Dirk Linzmeier, CEO:
Software-Driven Rides: The Symphony of Automotive Lighting and Digital Harmony

Session 3: EE Architecture

Continental · Maximilian Austerer, Head of Light Solutions Innovation & Quotation:
Light Control Solutions for Software Defined Vehicles—Challenges & Opportunities
Infineon · Pierre Mehn, Automotive LED Lighting Application Marketing and Management Director:

Evolution of Exterior Pixel Light Architecture and Upcoming Challenges

Nichia · Menno Schakel, Leader of uLED solutions:
Integration of a MicroLED Pixelated Light Source, μ PLS, in E/E Car Architecture

Onsemi · Paul Decloedt, Auto Lighting Products Strategic Technical Marketing:
Transformation to Software-Defined Lighting Architecture

ST Micro · Fred Rennig, Principal Technical Marketing Engineer:
CAN FD light—A Network Protocol to Control Lighting

Microchip · Martin Miller, Automotive Networking Marketing & Applications Director:
Scalable Ethernet Lighting Architecture

Elmos · Joern Conze, Business Sense & Control VP:
Enabling the Lighting Edge to Support New BEV Design

Inova Semiconductors · Thomas Rothhaupt, Director:
Revolutionary System Solution for Interior Lighting in Vehicles

Feka · Selim Beriş, R&D Electronic Design Chief:
Supporting V2X Communication with Automotive Lighting Applications

Session 4: ADB

TechnoTeam · Christian Schwanengel, Light Measurement R&D Authorized Signatory:
High-Resolution and High-Contrast Analysis of Vehicle Lighting

ASAP · Janina Brückel:
Special Challenges and Solutions of Testing the ADB Function

Docter Optics · Dr. Hagen Schweitzer, Optical Design Manager:
Cost Efficient Lens Systems for ADB With AR Coated Polymer Optics

Fraunhofer · Dr. Arnold Gillner, Head of Business Development Research Markets:
Integrated Smart Headlight

TU Darmstadt · Korbinian Kunst, PhD student:
Next Steps of ADB—Research Methods for Optimising Light Distribution

Polyrise · Dr. Vincent Gaud, CTO and cofounder:
Viewrise Technology: A Wet Antireflective Coating for ADB and High-Resolution Vehicle Headlights

TU Darmstadt: David Hoffmann, PhD student: *HSPR Status*

Round table: ADB

How do we emphasize ADB performance ?

Lunch

Session 5: Interactive Social Display (ISD) and Front and Rear Fascia

Zeekr · Jon Rådbrink, Head of Exterior Design:

Zeekr Stargate

Audi · Dr. Michael Kruppa, Head of Front Light Development:

Intelligent Light Sources in a Digital Environment—Chances and Challenges

Inevo · Fagarazzi Roberto, Managing Director:

Future Trends for Plastic in Automotive Lighting and Technological Challenges Behind Them

Marelli Automotive Lighting & Sensing · Dr. E.-O. Rosenhahn, Headlamp Innovation Director:

Future Lighting Functions and their Lighting Needs for the Application

Liaowang · GU Dan, Vice General Manager and R&D Center Director

MDL Technology in the Avatar 12

HSL · Jan Denecke & Jordan Greene:

Empowering Brand Identity—the Future of Intelligent Lighting & In-Mold Electronics

Mind · Alfonso Oroczo, Europe R&D Manager:

Exterior Display, Today and Tomorrow

ZKW · Gerald Boehm, Sales & Technology Relationship Manager:

Display Technology Possibilities and Outlook

Round table: Design

Will the front and rear end become displays?

5:30 PM: end of event

Lighting News

C-NCAP 2024 Protocol Officially Released

LIGHTING NEWS



C-NCAP

中国新车评价规程

On 18 January, the 2024 version of the C-NCAP (China New Car Assessment Programme) protocol was released. It's an update of the 2021 version, informed by three years' worth of research on road traffic accidents in China and developments in the Chinese automobile market, and in coordination with the international advanced new car safety evaluation system. The goals are to continuously improve the safety performance of China's automobiles and make progress along the path from zero fatalities to zero casualties, and then to zero accidents.

Strong support was provided by the C-NCAP Expert Technical Committee in the formulation stage of the draft regulations, and valuable suggestions were received and considered from the whole industry during the public-comment period. The 2024 protocol takes effect on 1 July 2024.

Main revisions include:

Occupant Protection

- Frontal 100-per-cent overlapping rigid barrier collision speed has been increased, and the evaluation index of the chest of the second row of children's dummies has been corrected
- The Side barrier collision speed has been increased; the honeycomb aluminium model at the front end of the mobile barrier has been altered, and the AE-MDB barrier is replaced by an SC-MDB barrier
- The side barrier crash test and the side pillar crash test are now required for all models
- Side pillar collision distal occupant evaluation and second-row child evaluation have been added
- A virtual assessment item has been added for the protection of occupants at the far end of the side pillar collision
- The whiplash test evaluation method has been optimised
- A bonus for active seat belts has been added
- Forgotten-child reminder function assessment has been added
- Curtain airbag pressure packing performance evaluation method has been improved
- Requirements increased for test and evaluation of electric vehicle scraping

- Virtual assessment added for occupant protection with active and passive safety integration

VRU Protection

- Combined pedestrian protection head shape test, leg shape test, and VRU automatic emergency braking (AEB VRU) test into the VRU protection section for integrated evaluation
- AEB VRU test now includes new intersection scenarios, and existing scenarios are optimized and upgraded: test parameters modified, and obstacles and child targets added.

Active Safety

- Based on the 2021 version of the AEB C2C system, new fork intersection scenarios, highway rear-end collision scenarios, and AEB misaction scenarios have been added.
- Lane support adds curve departure warning scenario and emergency lane keeping scenario, and optimises and modifies the parameters of blind spot monitoring scenarios
- Increased evaluation items for the vehicle door opening warning system
- Added rear traffic alert system evaluation items
- Added driver monitoring system evaluation items
- Added optional audit items for traffic signal recognition
- **Added adaptive high beam measurement item**

The official test procedure can be found [online](#), but only in Chinese language. In appendix M, Vehicle lighting performance test procedures are defined for aiming and ADB.

At CES 2024, Valeo and Sennheiser present ImagIn: an immersive sound and light experience in your car

LIGHTING NEWS



Valeo and Sennheiser showcased during CES 2024 their technologies to design a unique immersive sound and light experience.

Expectations for personalized experiences continue to grow, especially as vehicles become more autonomous and passengers have more time to enjoy a new kind of interior experience. Valeo and Sennheiser Mobility have worked together to develop a unique multisensorial exploration where light combines with immersive sound, offering a new level of immersion. The heart of our common vision is to change the way of perceiving car interiors, transforming onboard spaces into informative, entertaining, and immersive zones. With ImagIn, the car becomes a cocoon of well-being.

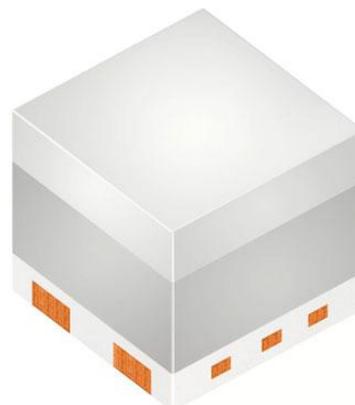
The partnership between Valeo and Sennheiser embodies a common commitment to excellence and a passion for pushing the boundaries of innovation.

Valeo has developed improved technologies for daytime projection to deliver an onboard polysensorial and immersive experience. Moving beyond a driver-centric approach, all passengers will experience unique style and functionalities, thanks to an interior projection on surfaces and sound management. The Valeo interior lighting system is composed of projection modules, a smart adaptable user-interface based on gesture detection and a software dedicated to projection and content management. This innovative system will extend the useful surfaces and make them accessible for all passengers thanks to a human-machine interface (HMI) at the front and the back of the vehicle. Beyond its practical utility, it transforms the vehicle design without impacting the hardware, combining visual projected content with smart surfaces and sound for an immersive and intuitive experience. ImagIn covers 5 patents for this innovation.

Sennheiser's advanced audio system creates the illusion of a sound stage around each passenger, transforming every ride into a breathtaking soundscape. It transforms the entire cabin into a vibrant multi-dimensional soundscape. The Immersive sound zone algorithm for headrest audio in all seats, along with animated visuals, increases the acoustic separation between each seat row, allowing passengers to enjoy tailor-made travel experiences.

ams OSRAM SYNIOS® P1515 for automotive applications

LIGHTING NEWS



Today, an automobile rear combination lamp (RCL) requires a complex and deep optical assembly consisting of diffusers and light guides to spread the bright points of light from conventional toplooker LEDs without producing visible dark and bright spots.

By replacing toplooker LEDs with the SYNIOS® P1515 sidelookers, automotive manufacturers can achieve a smooth, homogeneous appearance across the width of the vehicle. With the same number of LEDs as in a toplooker-based arrangement, an RCL or turn indicator can be produced with a far thinner and simpler optical assembly. This opens up new potential to create dramatic and distinctive shapes in new RCL designs.

Alternatively, a homogeneous appearance can be achieved with the same depth of optical stack as for toplooker LEDs, but with substantially fewer LEDs and LED drivers. With this option, the lamp manufacturer benefits from a reduced bill-of-materials cost and a simpler circuit configuration.

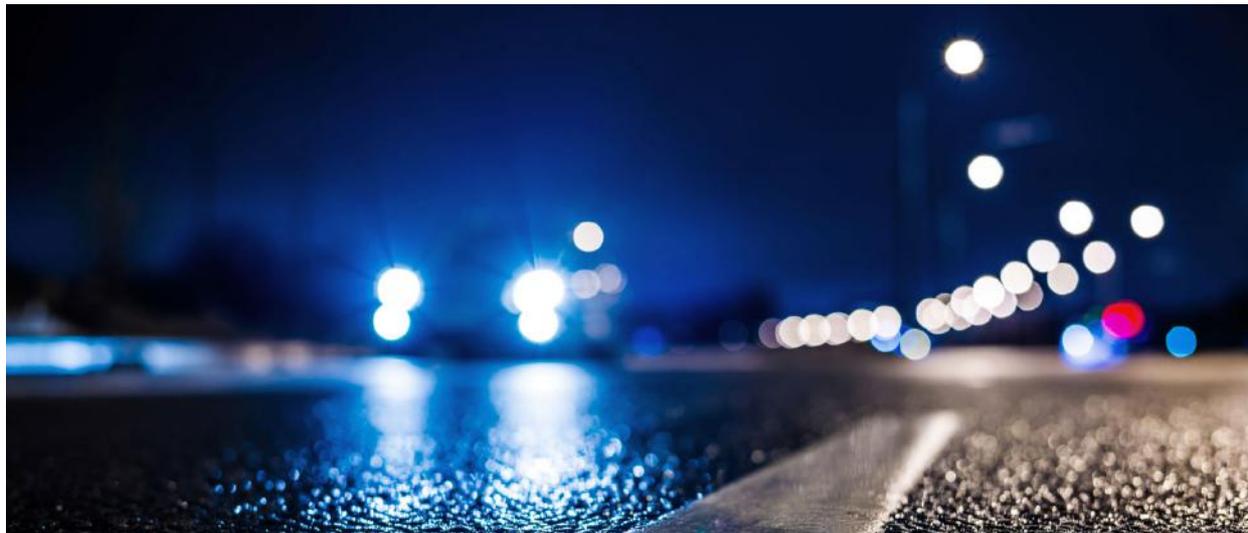
ams OSRAM simulations indicate a design based on the SYNIOS® P1515 can reduce the number of LED units and drivers required by as much as 66 percent compared to equivalent toplooker-based designs while maintaining a very high level of homogeneity. The innovative operation of the SYNIOS® P1515 LEDs also enables the design of new super-sleek rear light bars that enhance the aesthetic appeal of the product to discerning car buyers.

The AEC-Q102 qualified SYNIOS® P1515 LEDs produce a side-emission output with uniform 360° light intensity all-round the device. Light is also emitted from the top of the LED, but at lower intensity than from the sides, to ensure that applications such as extended rear light bars can be easily realized with no bright or dark spots.

The [SYNIOS® P1515 family](#) is available for sampling in red (621 nm), super-red (633 nm) and yellow (587 nm).

UK Drivers Object to Headlight Glare

LIGHTING NEWS



The Daily Mail, a British tabloid, reports that according to a new survey by the motoring group RAC, drivers are increasingly upset by headlight glare. In the survey, 85 per cent of respondents say they have been partially blinded by the glare of bright headlights and believe the problem is becoming worse. 68 per cent said they are unable to see clearly again for between one and five seconds after glare exposure. 60 per cent say it has reached such problematic levels that dazzling is becoming a cause of accidents, and 5 per cent told the RAC they have nearly been involved in a collision themselves as a result of having their eyesight temporarily compromised by bright headlights.

Having annually researched and published reports on the number of motorists suffering from dazzling on the road since 2018, the RAC say this is clearly a growing concern. They list our possible reasons behind the increase: brighter and bluer LED headlamps supplanting yellower, less-intense halogen ones; misaimed headlamps, the increasing popularity of SUVs with high-mount headlamps, and aftermarket "LED bulbs" installed in halogen lamps.

Antolin's New India Plant

LIGHTING NEWS



Antolin have set, as the top goal of their transformation plan, to reinforce their presence in high-growth-potential markets. So, they've opened their first factory in India specialising in lighting, HMI systems, and electronics. This adds to Antolin's solid industrial and sales network there with nine industrial centres; two technical-commercial offices, and over 2,000 employees.

The opening ceremony was attended by Antolin Chairman Ernesto Antolin; representatives of the company's customers; authorities, and other Antolin executives.

The new centre is located in the town of Chakan, near Pune—one of the most industrialised regions in the country and home to plants of the leading automotive manufacturers. At the new facility, Antolin will produce advanced solutions and components for their largest Indian customers, including Tata, Suzuki, Toyota, Mahindra, and Škoda-VW. The factory comprises 3,200 m² of manufacturing and assembly area and adjoining offices, and will employ 200 highly skilled employees within two years.

In addition to the plant's opening, Antolin have a team of the Lighting, HMI and Electronics Business Unit there to harness the emerging demand for smart advanced surfaces and functional lighting from automakers seeking to develop more advanced interiors.

The projects of the new factory include all the ambient lighting for the new Mahindra electric vehicle platform, as well as an innovative central touch control panel project for Tata's Safari and Harrier models. This project, already being produced at the plant, integrates sophisticated smart surface, multicolour ambient lighting, capacitive switches, and electronics. By combining several HMI functions, the design of this part maximises the interface for the end user and the vehicle customisation options.

Antolin are in the midst of their 2023-'26 transformation plan aimed at developing a solid and profitable long-term growth project. One of the pillars of the plan is to grow and expand in Asia, and specifically in the Indian market.

Geely Galaxy E8 Has Fully Lit Front Bumper

LIGHTING NEWS



The Geely Galaxy E8 was launched in China with a starting price of C¥175,800 (USD \$24,760). Its top trim level has two motors totalling 475 kW, and a 620-km range.

Its main lighting features are thin headlamps hidden in the bumper and an illuminating grilleboard Geely call the "Ripple of Water". This is the first world's mass-produced vehicle with a one-piece illuminated front face. Precision microperforation laser carving techniques create 158 illuminated windows through a 0.2-mm dot matrix design. This ensures a seamless blend between the vehicle's luminous appeal and paint colour.

The Galaxy E8's drag coefficient is 0.199; the only model with a better C_d is the recently unveiled Xiaomi SU7.

At the rear we can see a really nice 3D lens shape, reminiscent of Mercedes' safety-corrugated taillights of the 1970s and '80s.



The Geely Galaxy E8 is built on the SEA platform which underpins Zeekr, Smart, Volvo, Lotus, and other-brands EVs.

Light Concept on BMW Vision Neue Klasse

LIGHTING NEWS



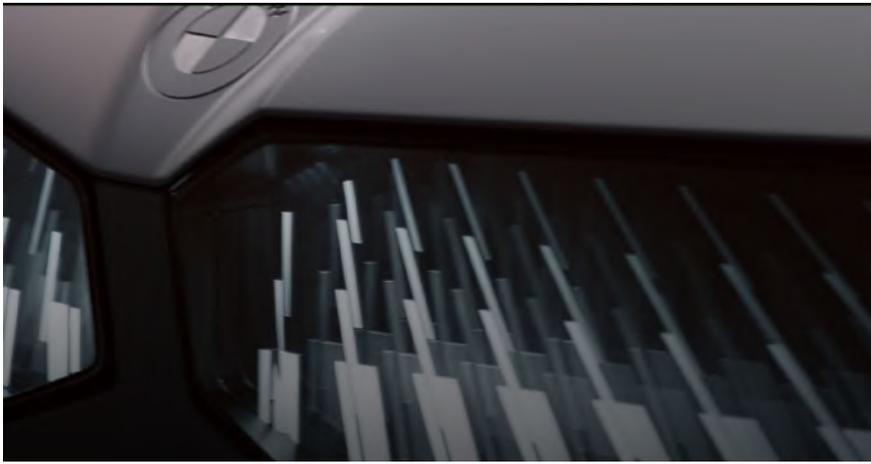
In an [online article](#), BMW explain the lighting concept of their Vision Neue Klasse concept. Light is considered as a central element, day and night, and brings the vision vehicle to life.

Light Design Project Lead Tom Binder talks about the car's groundbreaking lighting design and its basic principles: clarity and expressiveness. He explains BMW lighting design evolution over the decades, for example from the round pairs of headlamps to the iconic "Angel Eye" parking light rings, always striving to intensify the closeness between vehicle and driver. Modernised, reduced and yet highly emotional, the characteristic four-eyed face remains present in the concept car's front and rear lights.

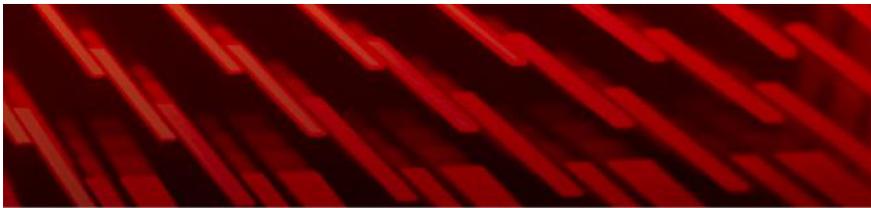
Depending on the time of day or season, the location or the journeys already made during the day, the car will use artificial intelligence and an understanding of user behaviour to recognize which scenario is appropriate at any given time. The spectrum ranges from eye-catching light animation with matching sound effects to gentle and unobtrusive understatement. The designers' art lies in offering the greatest possible customisation options while at the same time preserving the elements typical of a BMW brand, such as the kidney shapes and the four-eyed face.

The different lighting scenarios are able not only to greet different drivers individually and thus show that they've been recognised (and signal that the car is adopting that user's preferred settings and configurations), but also to display a variety of information. For example, a glance at the vehicle makes it immediately clear whether it is charging. In addition to the normal functionality that a headlamp must fulfil, this type of communication between people and the vehicle, the fusion of the physical with the digital, is a completely new function of lighting. The car has the opportunity to signal that it perceives and understands people and their needs.

A reminiscence of the slats of a radiator grille is formed by individually controllable lighting elements that enable an impressive three-dimensional depth.



The technology behind the laser light, in which semiconductor laser diodes meet a yellow phosphor reflector in the blue area to create a point of light as bright as the sun itself, has been adapted in the BMW Vision New Class to activate new flat elements with light using laser wire and phosphor technology. Supposedly floating design elements suddenly turn into light sources.



A patented approach makes it possible to distribute 3D-printed lighting elements on different levels and control them in a targeted manner.

The integration of artificial intelligence and smart technologies is essential in the world of tomorrow. It is also the demand for durability, reparability and ultimately recyclability. LED and laser technology are designed to last the life of the vehicle, and thanks to digital technology, new lighting functions can also be added after the vehicle is sold and on the road, so users can stay for the long term in the race to keep ahead of their neighbours.

Today, the collaboration between the various areas of vehicle development at BMW has reached a new level of integration. Vehicle design, lighting design, sound design– all of this happens hand in hand. Designers and engineers work together to bring each other's ideas to life.

General News

Dongfeng eπ 007 Reservation List Opens

GENERAL NEWS



The Dongfeng eπ 007—alright, a Greek letter, but how long before unpronounceable symbols join car names?—has officially opened reservations recently, with a pre-sale price starting at C¥159,000 (USD \$22,340).



There's a narrow split headlamp on both sides of the front fascia, with sharp edges and corners, and the lower part also outlines a sort of fang-shape. There's no grille, and at the centre is the double-T brand logo.

At the rear, there's a trendy full-width band of black, white, chrome, and red elements.

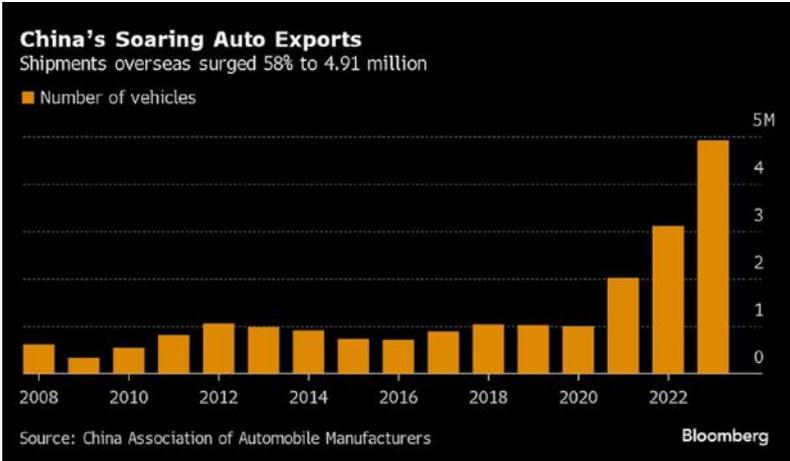
China Car Production Smashes Records in '23

GENERAL NEWS



China's auto production and exports climbed to record highs in 2023 as its domestic market recovered and manufacturers filled the void left by Western companies who pulled out of Russia.

Automakers produced 30.16 million vehicles in China last year, and wholesale deliveries, including shipments to dealers, rose to 30 million, according to the China Association of Automobile Manufacturers. Both figures surpassed previous records set in 2017.



CAAM Vice secretary-general Chen Shihua says, "Price discounts have impacted the market and the recovery of auto consumption is ongoing. Toward the end of the year, the auto market performed better than expected and production and wholesale volumes broke records".

Russia was the top destination for Chinese auto exports in 2023, receiving more than 841,000 vehicles in the first 11 months of the year, more than twice the number sent to № 2 Mexico. Chinese automakers have taken advantage of the withdrawal of companies including Volkswagen Group and Toyota following Russia's invasion of Ukraine in early 2022.

SAIC remained China's biggest auto exporter, while Chery claimed the № 2 spot, boosted by their shipments to Russia. Geely and Changan followed in third and fourth places.

Consumers Ready for Connected-Services Subscriptions: McKinsey

GENERAL NEWS



Connectivity solutions and in-car digital offerings, such as entertainment and advance hazard warnings will, according to global consulting firm McKinsey, play an increasingly important role in the future mobility experience and change the revenue streams for automakers. By 2030, core connectivity use-cases, such as gaming and over-the-air upgrades, as well as Wi-Fi and even heated seats, among others, could deliver more than \$250bn in annual revenues, says McKinsey, who revealed their findings at CES.

Getting a handle on what consumers really want and will pay for is critical for automakers and suppliers making bets on future products and offerings. McKinsey surveyed 1,600 car owners across the U.S., China and Germany. Some key findings: Customers favour subscription models for connected-car features and apps, provided the features make sense for subscription, versus features expected to be standard or otherwise permanently installed.

Connectivity services and apps and the superior execution of the driver interface is the deciding factor that will get 40 per cent of respondents to change brands, according to the survey findings. 49 per cent of U.S. and 55 per cent of Germany respondents say they would switch for superior connected-car services.

The connectivity features that in U.S. buyers prioritize are: anti-theft alarms (75 per cent); smartphone integration (66); heated seats (63); two-zone climate control (60); lane assist (59); Wi-Fi (56); advanced steering (55); and automatic high beams (55 per cent). How heated seats, climate controls, lanekeeping assist, advanced steering, and headlight beam controls qualify as 'connectivity' features was not explained.

BMW Widen Premium Sales Lead

GENERAL NEWS



Global sales, premium brands

Brand	2023 sales	Change/2022
BMW	2,253,000	7.3%
Mercedes-Benz	2,043,000	0%
Audi	1,895,000	17%
Tesla	1,808,000	38%

BMW in 2023 extended their lead over Mercedes-Benz as the world's top-selling premium brand, while fourth-place Tesla nearly overtook Audi for the third spot. BMW's EV sales increased 92 per cent to 331,000. BMW Group, which includes the MINI and Rolls-Royce brands, sold 2,555,341 cars for the year, a 6.5 per cent increase.

Mercedes car sales were flat at 2,043,800, virtually the same figure as in 2022, and changeovers to new models constrained deliveries, especially in the fourth quarter. Mercedes-brand EV sales were up by 73 per cent to 222,000. Mercedes-Benz Group sales, including Mercedes vans and Smart cars, were 2,491,600, a 1.5 per cent increase.

Audi sales were up 17 per cent to 1,895,000. The brand's EV sales were up 51 per cent to just over 178,000. Audi's growth in 2023 was enough to stiff-arm Tesla, who sold 1,808,000 million cars, a 38 per cent increase. Just two models, the 3 and the Y, accounted for 96 per cent of Tesla's sales, with the S and X models accounting for the rest.