DrivingVisionNews.com
Automotive lighting and driver assistance technologies

DVN REPORT

October 2020

New Models July-October 2020

Motor shows are going virtual.

The world's major motor shows are postponed due to the pandemic. Meanwhile, the world's automakers are working hard on their new vehicles and technologies, and finding new ways of launching their latest works.

The show is going ahead, with digital premieres and livestreamed press conferences. Everyone is adapting, and DVN will do so as well by presenting our popular motor show DVN Report as a quarterly publication grouping all the latest news about exterior and interior lighting.

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About the authors

Hector Fratty's entire career has been in automotive lighting.
From 1995 to 2006, he was Valeo Lighting's chief of R&D.
His level of expertise in lighting gained him recognition as one of Valeo's five Master Experts. In 2008, he initiated the launch of his own company, Driving Vision News, which has become the automotive lighting and driver assistance industry's journal of record dedicated to keeping the community informed and communicating about the latest progress and developments.

Driving Vision News DVN is the vehicle lighting and ADAS industry's journal of record, dedicated to keeping the community informed and communicating about the latest progress and developments.
DVN's three pillars are

• **Technological watch** on new emerging technologies, with weekly electronic newsletters bringing news, analysis, and crucial information on innovation in lighting, ADAS, and smart car interiors; there are also monthly technical reports with sharp focus on cutting edge technologies, company profiles, regulatory matters, and other relevant content available only from DVN

• **Networking** of high-level decisionmakers, researchers, innovators, practitioners, academics, and regulators to make new business connections with two workshops per year in rotating locations throughout America, Europe, China, Japan, India, and Korea. DVN Workshops gather over 300 participants.

• **Promotion of innovations** from DVN's 150 member companies—we facilitate the promulgation of knowledge of innovation, which in turn paves the way for commercialisation, enabling to build new relationships through DVN Community to forge new business worldwide.
The DVN Gold membership roster includes 30 automakers, 30 lighting & ADAS tier-1 suppliers, 15 light source suppliers, 50 tier-2 & -3 suppliers, and a wide variety of universities, research outfits, and consultants. DVN Gold members receive all publications and attendance privileges at all DVN Workshops.
Basic members—2,500 and counting—receive Newsletters and can obtain access to other DVN publications and functions.

DVN's Takeaways From Recent Auto Launches

Motor shows—the live, in-person kind where everybody gathers at an expo hall—are almost all on indefinite hiatus at least until the pandemic will eventually simmer down. But that hasn't put a hard stop to automakers' advances, nor to their new-model launches. Such launches are now being done elsewise than at big shows. Some models are launched at virtual online motor shows, some in model- or marque-specific livestreamed events, and some in coordinated tie-ins with other new products, services, or ideas.

Regardless of how the launches are done, and despite the pandemic, we are still in a time of unprecedented, galloping innovation in lighting technology, technique, and design. As a companion to our October DVN Quarterly Report with detailed looks at interesting newly-launched models, we've compiled this quick list of eight takeaway points from recent auto launches:

1.

Very impressive cars considering styling, functions, and trends.

The innovation curve keeps on growing steeper and steeper, as it seems, with innovation begetting innovation in functionality and design, and individual innovations banding together to power larger-scale trends. Ten years ago, who would have predicted the likes of these?

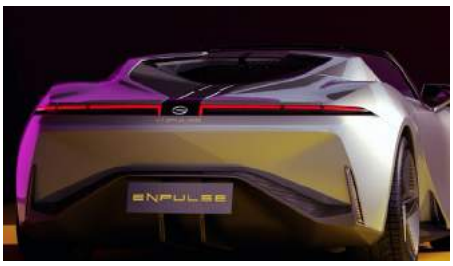

Lucid Air


Audi A5


Mercedes-Benz S-Class

HiPhi from Human Horizons


Cadillac Lyriq Concept



GAC EnPulse

2.

Front lamps are growing slimmer and slimmer.

Lightstyles come and lightstyles go, but there is a definite trend toward slit-shaped headlamps. To some degree it's fuelled by a sort of look-what-we-can-do-now exuberance as LEDs, laser diodes, light guides, and other technology expands the horizons of what's possible. Even on vehicles with an overall-big exterior appearance, we see squinting headlamps and slimline DRLs:


BMW 4-Series


Toyota Venza


Cadillac XT6

3.

Rear lights, too, are becoming slimmer and slimmer.

Here again, as at the front, even on large SUVs and big cars the trend is inexorably toward slimline lightstyling—probably driven by the same technical factors as the front lamps, reinforced by stylists' desire to tie together the front and rear of the car:


Infiniti QX60 Concept


Jaguar F-PACE


Porsche Panamera

4.

Lights increasingly present and amplify brand signatures.

Here are just three examples of many. The SEAT's strongly triangular DRL signature, the BMW's J-hook, and the Peugeot's triple-claw design are strongly characteristic of those brands' visual signatures. This is part and parcel of what VW mean, for example, when they say light is the new chrome:


SEAT

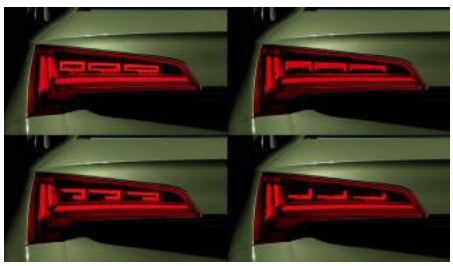
BMW


PEUGEOT SUV's

5.

New lighting functions are moving from the lab to the road.

Message display panels, selectable-signature OLEDs, blue accent lights, matrix-effect decorations, and much, much more:


Audi Q5


Mercedes-Benz S-Class

HiPhi from Human Horizons

6.

More and better 3D effects in the design of front and rear light units.

We have come a very long way from the days when the only three-dimensionality of a lamp was its outer lens contour; take a look at these beautiful deepies:

BMW iX3


Hyundai Kona


Nissan Z Proto

7.

Full-width light lines

Here again, light is the new chrome. We're seeing more and more linear arrays tying the left and right lights together—both at the front and at the rear:


VW ID.3


VW ID.4


Jeep Grand Wagoner concept

8.

Interior lighting is continuing its strong upward trajectory.

Look at the beautiful deep blue accent lighting making the interior elements in the new Mercedes S-Class appear to float, for example, or the lightning-bolt effect in the Range Rover Evoque, or Rolls-Royce's magical Starlight headliner:


Mercedes-Benz S-Class


Rolls Royce Ghost


Audi Q2

Acura TLX

The all-new 2021 TLX is the first Acura sedan created with Acura's «Precision Crafted Performance» brand direction.

The new look is highlighted by signature Acura design cues first seen on the Type S Concept, starting with an all-LED lighting package including the newest 4-lamp version of Acura's Jewel-Eye™ headlamps, and chicane-shaped daytime running lights.

The rear of the TLX echoes the chicane signature, integrating the front and rear light design.

Audi Q2 Facelift

The compact SUV now puts forth a boldly progressive character with new headlamps and more Audi Connect services and driver assistants.

LED headlamps are now standard fitment, and matrix headlamps are available as an option. Seven individual LEDs seated in a shared module produce an intelligently controlled high beam which always illuminates the road as brightly as possible without blinding other road users.

Ten LEDs installed behind rhomboid optical components generate the daytime running light, and seven further LEDs produce the sequential turn signal light. Customers can choose LED taillamps with or without sequential turn signal, which comes standard with the matrix LED headlamps. The front and rear lights draw attention to the new Q2 with light sequencing when the car is locked and unlocked.

The Q2's rear lights carry over from the previous version.

The interior design echoes the taut design of their exterior. With the optional Ambient Lighting Package Plus, the trim strip on the instrument panel and the knee pads on the centre console feature elegant backlighting.

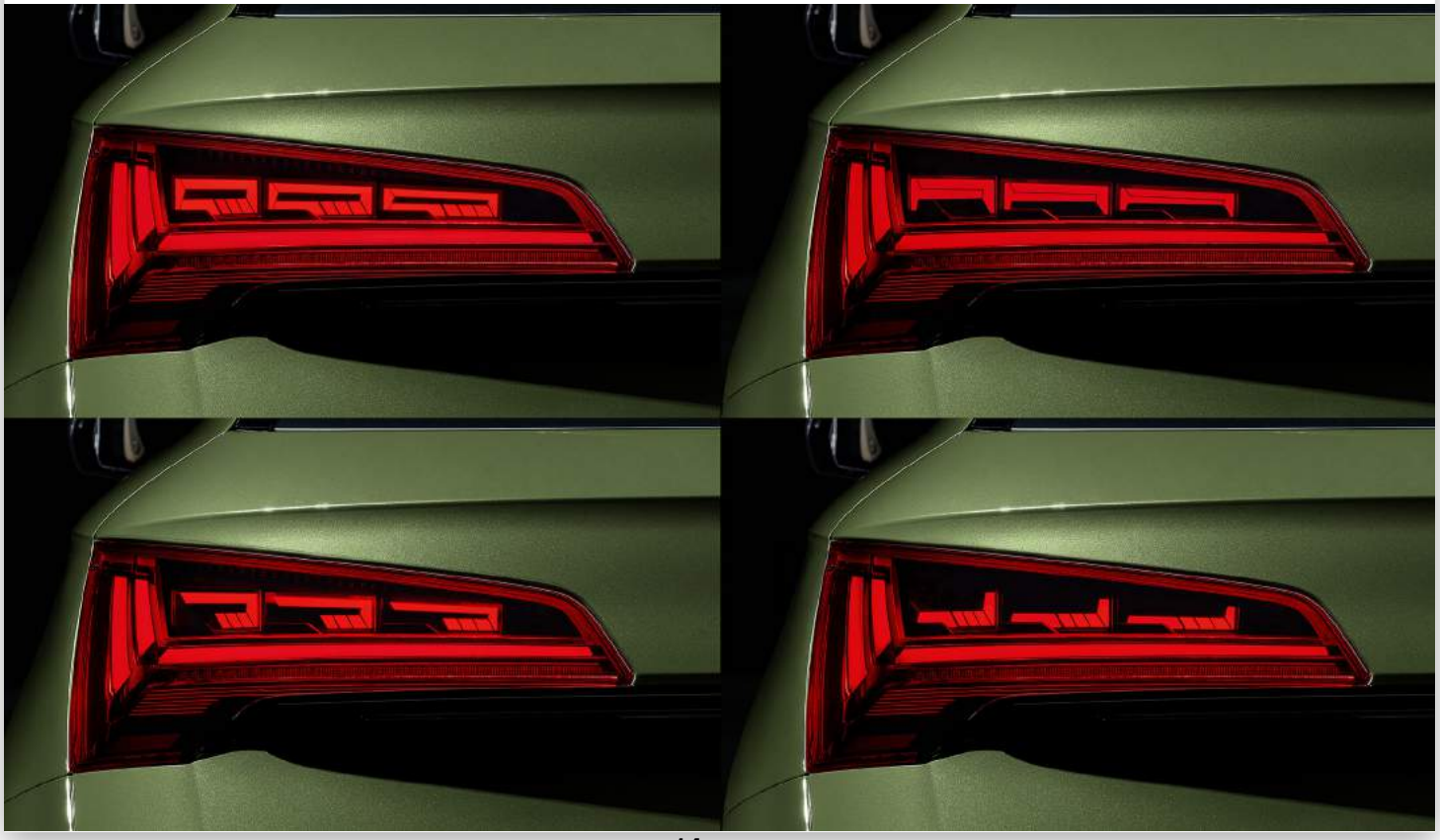
Audi Q5 Facelift

The latest Q5 offers a wide array of infotainment and assistance options, and the sharpened exterior design emphasises the Q identity with a rear light cluster featuring digital OLED technology for the first time in the world.

The upper section of the LED headlamps features a new signature for the daytime running lights. New OLED lighting technology brings its homogenously-lit surface effect. The optional OLED rear light is split into three tiles of six segments each, which enables Audi designers and developers to create different light designs and signatures from a single item of hardware.

When ordering their Q5, customers can choose from three rear-light signatures, each with its own Welcome and Farewell animation sequences.

When the driver selects the car's «Dynamic» driving mode, the lights change to yet another signature. The OLED tail lamps also have proximity detection: If a road user approaches a stationary Q5 from the rear to within less than two metres, all the OLED segments light up as a warning.



BMW iX3

BMW's fully-electric mobility offering now expands to include a crossover, the iX3 «Sports Activity Vehicle».

The potent dynamic intent of the new iX3 is highlighted by a chunky kidney grille and fog lamps featuring a hexagonal design for the first time on a BMW X model.

The full-LED taillight clusters' 3D look gives them considerable visual impact.

BMW 4-series

The new 4-Series Coupé's headlamps reach well into the flared front wheel arches. The lamps' slim contours, tapering towards the kidney grille, and the four-eyed face created by the side-by-side arrangement of the light sources create the focused expression which has become a BMW brand signature. Full-LED headlamps are fitted as standard, and the advanced technology at work here is visible in detail. Two U-shaped fibre-optic light guides in the lower section of the headlamps serve as the daytime running lights.

Among the items on the options list are adaptive LED headlamps with laser high beam booster, also including «Selective Beam» non-dazzling high beam assistant. Low and high beam are generated from both the headlamps' outer and inner light sources. Cornering light and adaptive cornering functions with variable road illumination are optimised for urban and motorway driving. At speeds above 60 km/h, the laser booster increases high-beam range to 550 metres and follows the course of the road dynamically. Hexagonal fibre-optic light guides provide the daytime running lights. Each of the outer DRL elements is now also employed as a turn indicator.

At the rear, slim and stylishly darkened full-LED rear lights which extend well into the flanks. Consistently illuminating rear light bars reproduce the L shape familiar from other BMW models.

BMW 5-series

New headlamps with L-shaped daytime running lights create a focused look.

LED headlamps with automatic headlamp range control are standard equipment. The two U-shaped DRLs are arranged side-by-side, and the turn indicator modules are at the outboard edges of the headlamps.

Two new optional LED headlamps create a totally new appearance. The two L-shaped light tubes arranged next to one another present a precise and modern graphic. The new contouring of the headlamps and the light sources' structures bring a modern twist to the familial BMW visual signature. The outer daytime running lights also provide the turn signal function. All of the light functions use LED technology.

A new L-shaped light graphic gives the 5-Series its own model identity. Black edging lends the rear lights a slimmer appearance. An overhang in the outer edge of the rear lights' upper section brings a fresh interpretation of the familiar BMW L-shape.

The prominently three-dimensional external lens now houses the light fixture directly, creating an iconographic showcase for the main light functions.

Cadillac XT6

Cadillac expand their crossover and SUV lineup with the global debut of the XT6.

The XT6 feature advanced lighting technology including emphatically vertical LED signatures. Two headlamp variants are offered: a standard bi-function LED projector design or an optional high-performance LED headlamp system with a three-element projector array.

The vertical rear light strip is a brand identity signature for Cadillac.

Cadillac Lyriq Concept

Cadillac's EV portfolio begins with the debut of the Lyriq show car: a dynamic, modern, and fully electric luxury crossover.

A distinctive «black crystal» grille in the front is one of the Lyriq's most unique and expressive design elements incorporating lighting. It is also a dynamic feature, as it is part of a dramatic lighting choreography, greeting—along with bold vertical, slim LED signature lighting—the owner on their approach.

A split taillamp design incorporates slim LEDs that are also integrated into the lighting choreography.

Cadillac's most seamless and adaptive technology interaction with the driver and passengers, including the brand's latest user experience, is embodied in a 33-inch (diagonal) advanced LED screen spanning the driver's entire viewing area.

Citroen C4

The new C4 and electric ë-C4 represent Citroën's new-generation compact hatchback.

The front end, with its V-shaped signature lighting, incorporates Citroën's new aesthetic design as previewed on the CXperience.

This styling is a natural development of Citroën's previous front signature with its double-stage headlights and chrome chevrons stretched across the entire width of the vehicle. In this new iteration the chevrons extend to the daytime running lights at the top and now to the headlamps at the bottom. This serves to highlight the 100% LED «Citroën LED Vision» lighting technology. LED fog lamps with colourful surrounds complete this innovative and high-tech front end.

At the rear, the ë-C4 and C4 present the V-shaped LED rear signature lighting that appeared on the Ami One and 19_19 Concepts, tying in stylistically with the front end.

Dacia Sandero

Dacia have refreshed their offering in the compact car segment with the all-new Sandero and Stepway. The front and rear lights display Dacia's new Y-shaped LED light signature. A horizontal line joins the two lights at the front and rear and extends into the LED lights themselves, giving the car greater visual presence.

The LED headlamps, a standard feature across the entire model range, increase nighttime visibility with a 37% increase in beam length and 9% in beam width compared to the previous car's lamps.

The Sandero's tail lamp has a dual-Y signature.

Dacia Logan

This is the latest version of Dacia's iconic family sedan that changed the automotive market in 2005 by making new cars accessible to a wider population.

Some features are like those of the Sandero, such as the Y-shaped LED light signature and the carry-over rear lights.


LOGAN
DACIA


DACIA
LOGAN
DACIA

Ford Bronco

Ford unveiled their 2021 Bronco in two- and four-door models as the top of their new range of SUVs intended to compete with Jeep.

The front lights are integrated in a square panel and create a strong face with a circle-and-stripe signature.

The rear lights are set into the volume of the car and extruded to create a 3D effect.

GAC EnPulse

The EnPulse, presented at the 2020 Beijing Motor Show, is built on GAC's modular platform for electric vehicles.

Its frontal design evinces an airfoil profile with slim boomerang-shaped lamps. Turn signals are vertical linear LED arrays in the creased corners of the front fascia.

The tail lamps are done in a «light blade» design hinting at race car brake lights.

Gordon Murray T50

The Gordon Murray T.50's dashing exterior and interior design comport well with its far-out technical specifications. Only 100 of T.50s are to be built.

The LED headlamps hark back to Murray's F1; each lamp has two recessed rings that operate side-by-side as DRLs and turn signals. The high and low beam headlamps are in the middle of each ring. Murray say the new headlamps' performance bests that of the (unspecified) «previous industry-leading super-car headlamp» for reach and throw by 15%.

LED tail lights make use of thick light guide technology in three sections to form a circle with extreme depth effect; these units also act as rear turn indicators.

Geely Preface

The Preface's headlamps comprise two modules and three stripes for the DRL signature.

The rear lights are integrated in the bumper with a chrome bar as a finisher.
The 3-stripe signature ties the rear and front lightstyling together coherently.

HiPhi

HiPhi, Human Horizons' premium all-electric vehicle brand, announced that their HiPhi X will be equipped with the world's first programmable and customisable matrix lighting system comprising dual-core lighting modules with Programmable Matrix Lighting (PML) and Intelligent Signal Display (ISD) panels.

PML has a built-in controller which can directly control the lamp and its micro-mirrors. When the infrared camera detects a pedestrian or vehicle, the ECU will compute a solution within milliseconds to shape the path and brightness of the light.

Hyundai Elantra

Hyundai officially launched their all-new 2021 Elantra and Elantra Hybrid at The Lot Studios in West Hollywood with a special event broadcast round the world.

Refined, gemlike headlamps harmonise well with the bodyside surfaces.

High-tech tail lamps create a Hyundai flying-H logo shape. A horizontal light line extends across the deck, stretching to the edges of the car.

Hyundai Kona

The Kona's frontal design has LED eyebrow DRLs that give the car a piercing facial expression.

New taillights feature horizontally-stretched graphics echoing the shapes of the front end light signature.

Hyundai Tucson

The all-new Tucson features advanced design and state-of the-art technology.

On the Tucson's front grille, what Hyundai call «Parametric Hidden Lights» lurk. When the lights are off, the front of the vehicle appears covered in dark geometric patterns.

When the DRLs are switched on, the dark chrome appearance of the grille transforms into jewel-like shapes by dint of half-mirror optical technology, bringing an eye-catching element to an otherwise sleek appearance.

Wide tail lamps with another rendition of Parametric Hidden Light details continue the design theme.

The Tucson bristles with state-of-the-art «human-oriented technology», in the maker's words, to provide an advanced digital experience.

The fully digital configurable dual cockpit consists of a new 10.25-inch open cluster and 10.25-inch AVNT (Audio-Video-Navigation-Telematics) screen. This offers a personalised space intuitively optimised for a high-tech user experience. For example, the colour schemes of the cluster change depending on which drive mode is selected.

Infiniti QX60 Monograph Concept

The QX60 Monograph previews a more upscale and commanding design for Infiniti's popular family-focused SUV.

Intricate «Digital Piano Key» lighting at the front and rear projects a futuristic appearance and showcases Infiniti's desire to blend human artistry with the latest technology. The inner structure of the headlamp features a shape and pattern of lines inspired by a heatsink.

The lamps are accompanied by the glowing Infiniti brand emblem. The approach light sequence begins at the logo and fans out to the headlamps in a dynamic welcome for drivers.

The rear lamps are tinted; when extinguished, they appear to wrap around the back of the vehicle and into the rear flanks in one continuous shape.
Illuminated, the piano key lighting shines through to form a beautiful, futuristic light signature.

Jaguar F-Pace

New super slim all-LED quad headlamps with double-J DRL signature—available with optional pixel LED technology—deliver increased resolution and brightness.

The new lamps offer advanced ADB functionality to maximise the vision, visibility, safety, and comfort of the F-Pace driver and all those sharing the same roadspace.

The new LED rear lights with sculpted lenses are inspired by the all-electric I-PACE and feature Jaguar's chicane graphic, showcasing the advanced technology and modernity of the overall design.

The F-Pace interior is a space of luxury, connectivity, serenity, and refinement. The new cockpit design is bolder, more dynamic and with greater focus on the driver.
A new sporty centre console, faster in profile, sweeps up to the instrument panel and incorporates an optional wireless charger and greater console storage.

Jaguar XF

As in the F-Pace, the XF's slim new LED quad headlamps show a double-J DRL signature and can be had, optionally, with Pixel LED technology giving high-performance ADB functionality.

Premium LED technology is fitted as standard across the range and is available with automatic beam selection on SE and HSE models. The technology uses the forward-facing camera to automatically switch between high and low beam, ensuring that oncoming drivers aren't dazzled. Animated Directional Indicators are also available as an optional upgrade.

The rear lights carry over from the previous XF.

The new XF's interior combines crafted, luxurious materials and exquisite details with the latest connected technologies to offer a comfortable, contemporary, and refined experience for all occupants.

Jeep Grand Wagoner Concept

FCA's Jeep Grand Wagoneer Concept marks the resurrection of one of America's first SUVs; the original Wagoneer was offered from 1963 to 191. This production-realistic concept provides a preview of a modern reprise of the idea.

Bi-functional LED projector headlamps are cradled by genuine teak wood. Each slot features intricate lightweight latticework, while the space above and between each of the seven slots is lit to create a signature LED design. This LED pattern forms an elegant outline to the grille, helping to emphasise the width and overall front fascia of the vehicle.

LED taillamps wrap from the rear quarter panel to the back of the vehicle—as they did on the original 1963 Wagoneer, though no LEDs back then—and create a solid form.

The Grand Wagoneer Concept's interior presents with modern American style, meticulously crafted details, and elegant appointments.

Lucid

Lucid Motors, who strive for sustainable transportation with their luxury EVs, unveiled production details for the Lucid Air in a global webcast from their Silicon Valley headquarters.

The headlamps, developed in-house, use a high-tech microlens array system comprising thousands of light channels. Digital steering of the beam is done by digitally switching light channels in different directions for optimal visibility and enhanced safety.

The rear lights take the form of a full-width stripe with 3D lens.

Maserati MC20

The MC20 brings Maserati back to the supercar stage.

The front of the MC20 bears nice vertical headlamps with 3 stripes as a DRL signature.

The rear lights are integrated in the spoiler area and positioned at the extreme outboard edges of the surfaces to create more width.

Opel Mokka

The new Mokka presents pleasing proportions with short overhangs and a wide stance.

All Mokka variants get full-LED lighting—DRLs in familial Opel design, headlamps and fog lights, all in LED technology. The adaptive IntelliLux® matrix light has 14 elements.

As with the Opel Insignia, the IntelliLux lighting system provides a performant ADB functionality for high beam seeing with low beam glare.

LED technology allowed the Mokka's designers to go for very thin, stretched lights enhancing the feeling of precision and quality.
All Mokka model variants come standard with LED lights at the front and rear

MG HS

MG is the only car brand to increase UK sales volumes in 2020, and is now the № 4-selling electric car brand in Britain.

Top-spec versions get LED headlamps, with sequential LED front and rear turn signals.


MG 77 HS


HS

Mercedes S Class

The new S-Class uses digitisation to respond empathetically to the needs and wishes of its driver and passengers.

The headlamps bear a three-point DRL signature that has become typical of S-Class models, but now flatter and slightly smaller overall.

With precisely designed, highly detailed interior features and animated functions, the rear lights contribute to the impression of high quality, making the new S-Class unmistakable in both their day and night design.

The big news is the introduction of Drive Pilot and Intelligent Parking Pilot technologies, new L3 and L4 self-drive systems that represent milestones on Mercedes' march toward the autonomous future.
No other innovation in recent years has so radically changed the way a Mercedes is operated as MBUX (Mercedes-Benz User Experience), and now the second generation of MBUX makes its debut in the new S-Class.
The interior is even more digital and intelligent, as both the hardware and software have made great strides: brilliant displays on up to five large screens, in part with OLED technology, make the control of vehicle and comfort functions easier.
The possibilities for personalisation and intuitive operation have become far more extensive. This certainly applies for passengers, but also for the driver. For the first time, the new 3D driver display allows a spatial view at the touch of a button. A real three-dimensional effect is achieved without having to wear 3D glasses.

Nissan Z Proto

The Nissan Z exterior design is a nod to the past, The shape of the hood and the canted, tear-drop-shaped LED headlamps are both unmistakable reminders of the original Z.

«The LED headlamps have two half-circles that hark back to the Japan market-only 240ZG of the 70s,» Alfonso Albaisa explained, head of design at Nissan. «The ZG has clear dome lenses over the headlamp buckets, which under light give off two circular reflections over each headlamp. We liked that unique characteristic and discovered that it naturally fit with the Z's identity.»

The rear takes inspiration from the 300ZX taillights, reinterpreted for the modern world. Set within a rectangular black section that runs across the rear and wraps around the outer edges, the LED taillights convey a sharp glow.

Peugeot 3008 Facelift

he new 3008 sets the tone for Peugeot's elegant modernity with a redesigned front end and new full-LED rear lights.

The headlamps—with LED technology even on the base models—have an aggressive style and are extended by hook-shaped DRLs with a chrome tip. This light signature is perfectly in line with the current Peugeot familial style and is identifiable at first glance.

Newly upgraded rear lamps include full LED technology including the reversing light, with prominent 3D Peugeot «claws» for a punchy light signature. The indicators are sequential.

The interior of the 3008 features interior lighting underneath the door panel to give a floating effect.

Peugeot 5008 Facelift

Full-LED headlamps offer an even more high-tech and distinctive look, thanks to the extended light signature and the bend lighting function which optimises visibility at speeds of up to 90 km/h.

Of particular note is the replacement of the fog lamps with a new «fog mode» in the headlamps' repertoire. It adjusts the low beam headlamps' intensity when the rear fog lamps are activated.

The full LED tail lights have a smoked cover lens, extending the black deck lid on each side of the vehicle, which helps to visually widen the rear of the vehicle.

Porsche Panamera

The Panamera's new front end integrates the DRL signature in the lower and in the LED matrix headlamps including Porsche Dynamic Light System Plus.

The reworked light strip at the rear now runs seamlessly over the deck lid with an adapted contour, a continuous and flowing connection between the newly-designed LED tail light clusters. GTS models come with darkened tail lights with dynamic welcome and farewell light animation displays.

Qoros 7

The 7 is Qoros' first real vehicle model. The makers promote its «quality, safety and internationalization», and have designed the car to appeal to sports, fashion, and youth.

The headlamps are integrated in the higher part of the bumper, emphasising the SUV look of the vehicle and presenting a discrete 'L' signature. The main front lighting functions are in the lower part of the headlamp.


QOROS
观致7


QOROS 7

Rolls-Royce Ghost

The headlamps are framed by sharp bow lines intersecting with an angular light signature, creating an assertive and beautiful front end.

The new Rolls-Royce Ghost embodies design with light. For example, 20 LEDS under the top of the radiator grille subtly illuminate its columns. Early prototypes were adjudged too garish; the metal grille bars were given a less-reflective brushed finish, making the lighting effect more subtle.

Inside, the «Starlight Headliner» has 152 LEDs mounted above and beneath the fascia, each fastidiously colour-keyed to the clock and instrument dial lighting. To evenly light the Ghost wordmark, a 2mm-thick light guide has over 90,000 laser-etched dots on its surface to disperse the light evenly and create a sparkling effect as the eye moves across the fascia, harmonising with the twinkle of the Starlight Headliner.

Seat Ateca Facelift

SEAT's successful Ateca is newly reworked for 2020.

The new car bears a stronger three-dimensional connection between the grille and front lighting. The LED headlamps are set back, providing an eyebrow effect that makes the car instantly recognisable.

The car's rear design includes an impressive 510-litre cargo space and full LED rear lamps with sequential turn indicators on the FR and Xperience trims.

Suzuki Swift Facelift

The new exterior design is conceived by Suzuki as a «bold evolution of [the] Swift's DNA»
All Swifts now have LED headlamps and rear combination lamps as standard equipment. A high-tech look is presented by LED signature illumination in the headlamps.

Škoda ENYAQ

The Enyaq iV is Škoda's latest step in the implementation of their electrification strategy.

The car's got full LED matrix headlamps and LED DRLs, and its «Crystal Face», containing 130 LEDs, has an animated welcome/farewell function.

The optional full LED tail lights have a crystalline illuminated area which, like the sequetial indicators, participate in the welcome/farewell light dance activated when the vehicle is locked or unlocked in darkness.

Toyota Venza

The Venza is Toyota's midsize two-row crossover.

Headlamps are integrated in the piano black grille, and surrounded by a full-width chrome finisher. The lighting signature takes the shape of a double-J with two modules.

The rear light of the Venza is a full-width striped affair with the logo at the centre of the light bar.

Volkswagen ID.3

VW, prodded by diesel emissions unpleasantness, launched themselves into a new era of environmentally friendly mobility as the fully electric ID.3 was showcased at the IAA 2019.

The car embodies VW's philosophy that light is today's chrome, with LED lighting in multiple areas to stage the ID.3 design.

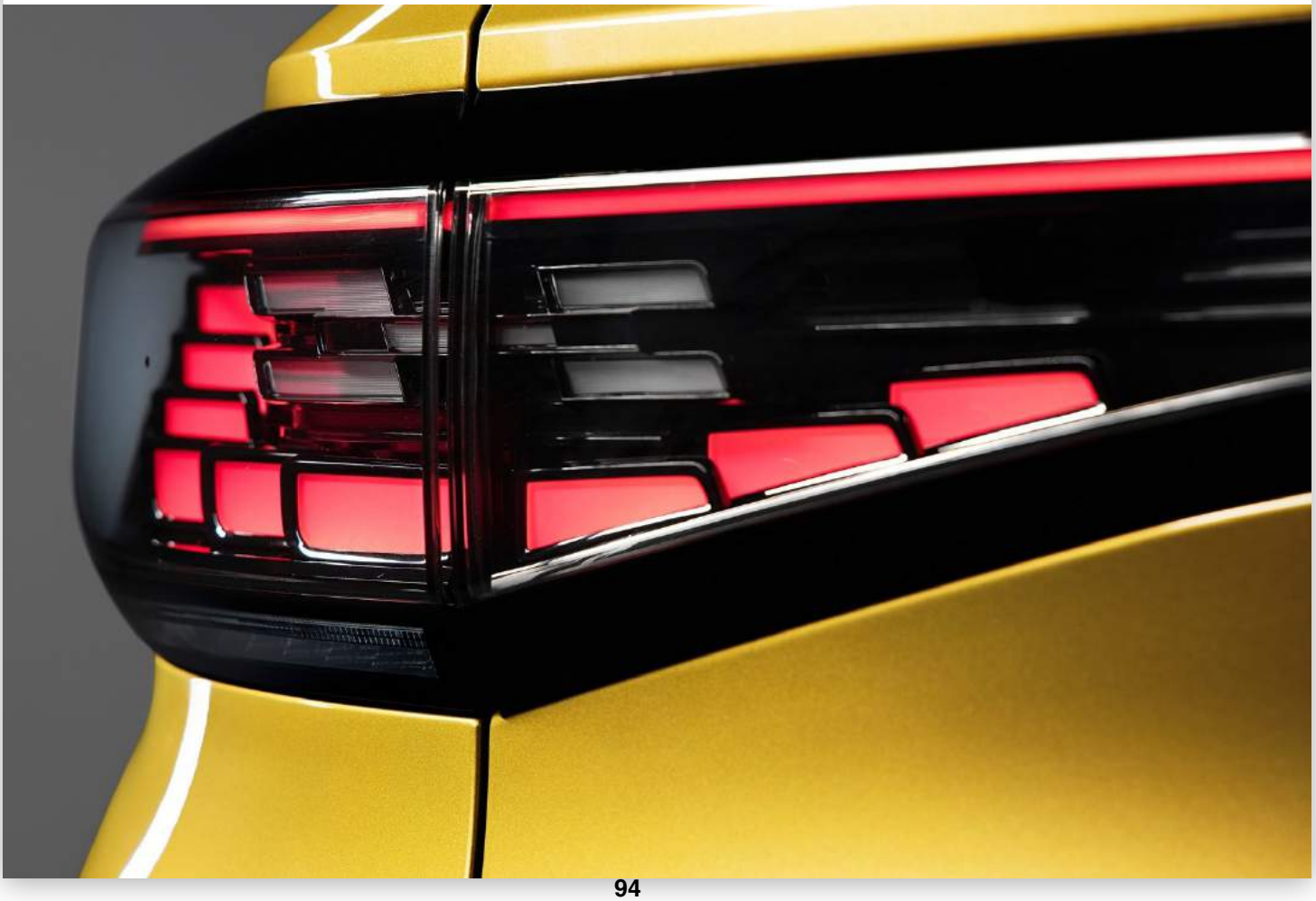
Interactive matrix LED headlamps give out 750 lumens, and have Dynamic Light Assist main-beam control: a camera on the windscreen analyses road users ahead as well as oncoming traffic. On the basis of this data, the glare-free high beam automatically switches on at speeds over 60 km/h and remains active without dazzling oncoming traffic.

The rear of the ID.3 is divided by horizontally-arranged, slim LED tail light clusters.

Volkswagen ID.4

The ID.4 electric compact SUV is based on VW's MEB platform (Modularer E-Antriebs-Baukasten, which is German for Modular Electric Propulsion Platform).
Large LED headlamps flow to the rear, visually reinforcing the car's aerodynamicity and incorporating the new IQ.Light with a pattern signature on the module.

The rear of the ID.4 gets a full-width piano black tail lamp, with integrated light bar running across the rear. The light signature is made with pixel-effect modules.



List of DVN Gold Members

26 Car makers

Aston Martin
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BMW
Daimler
FCA
Ferrari
Ford
Geely
GM
Honda
Hyundai Motor
Jaguar-Land Rover
Mitsubishi Motors
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Preh
Recticel
SMR Automotive
Sensata
Texas Instruments
Valeo
ZKW

30 Set makers and Tier 1s

Bee Lighing
Elba
Farba
Flex'N'gate
Grakon
Grote
Hascovision
Hella
Ichikoh
J.W. Speaker
Koito
Lear
Magna
Marelli AL
Mind Optoelectronics
Mobis,
NAL
Neolite ZKW
Nordic Lights
Odelo
Plastic Omnium
Peterson
Rebo Lighting
SL Corporation
Stanley
Valeo
Varroc
Xingyu
ZKW
Zodiac

14 Light Source Suppliers

Anrui Opto
Cree
Diodes Dynamics
Dominant Opto Tech.
Everlight Electronics
Excellence Opto Inc.
LG Innotek
Lumileds
Nichia
Osram
Samsung Electronics
Seoul Semiconductor
Soraa Laser Diode
Tungsram

55 Lighting Suppliers

3M
A2Mac1
AML Systems
Ansys
Aspöck Systems
ASYST Technologies
Auer-Lighting
Bicomoptics
Bühler Alzenau
Covestro
Dajac
DBM Reflex
DesignLED
Docter Optics
EcoGlass
Elmos
Enmech-Mektec
GXC Coatings
Holophane
IMS
Infineon
Inova Semiconductors
Instrument Systems
Jenoptik
Keboda
Less
Liteon Technology
LMT, Germany
Luminit
Luminus
Lumitex
Maxell Joei Tech,
MD Molding
Mentor Graphics
Mitsubishi Electric
Myotek Industries
Nalux
NXP
ON Semiconductor
Optoflux
Panasonic
Proper Group
Red Spot
Sabic
Sapphire
Sea Link International
SMR Automotive
SUSS Micro Optics,
Synopsys
TechnoTeam
Texas Instruments
TQ Technology
Weidplas
WL Gore
Zollner

20 Univ., labs, Consultants

Andaltec, Spain
CEA Leti, France
Darmstadt university, Germany
DEKRA laboratory, Nederland
FEP, Franhaufer, Germany
Fudan university, China
GranStudio, Italy
Hannover Leibniz Univ.(HOT),
G
Institut d'Optique, Fr.
Karlsruhe Lighting Institute, G
LAB, France
Light Sight Safety, Belgium
Nuremberg university, G
Pacific Insight, USA
Parma university, Italy
Rensselaer university, USA
SLD Laser
UMTRI, USA
University of California, SB
YoungNam University, Korea

DVN Reports

All previously-published DVN reports are available for download at DrivingVisionNews.com

2008-2016 Reports

Hella company profile
Audi company profile
AL company profile
DRL, brand signature
Valeo company profile
Koito company profile
China lighting market
The Wonderful World of Passenger Car lighting Regulations
Tier 2and3 contribution on automotive lighting
ZKW company profile
Simulations in automotive lighting
Mercedes-Benz profile
LED technologies in Automotive Head lighting
LEDs Thermo-Electrics
Interior Lighting
BMW and lighting
Lighting and Driver Assistance
OLED technology
Materials in lighting
Laser Head lighting
Korea Lighting Market
SL Corp profile
ADB/Matrix Beam
J.W. Speaker Profile
2015 Geneva Auto Show
ADAS and Lighting
India Car Industry and Lighting Market
Advanced Motorcycle Lighting
IAA Auto Show 2015
ISAL 2015
Peterson Manufacturing
NAIAS Auto Show
Delhi Auto Expo 2016
DVN Delhi workshop
Geneva Auto Show 2016
Vision of lighting 2025-2030
DVN Tokyo workshop
Automotive lighting Regulations worldwide
New ADB technologies
Mondial Paris Auto Show
VISION Congress Vehicle Lighting in USA
Peterson Manufacturing
NAIAS Auto Show
Delhi Auto Expo 2016
DVN Delhi workshop
Geneva Auto Show 2016
Vision of lighting 2025-2030
DVN Tokyo workshop
Vehicle lighting Regulations worldwide
New ADB technologies
Mondial Paris Auto Show
VISION Congress Vehicle Lighting in USA

2017 Reports

NAIAS autoshow
DVN Rochester workshop
Geneva autoshow
Simulation Tools
Shanghai autoshow
DVN Shanghai workshop
Interior Lighting
Israeli Startups
IAA Frankfort autoshow
ISAL symposium
Jaguar Land Rover and lighting

2018 Reports

NAIAS and CES Auto Shows
DVN Munich Workshop
Geneva Auto Show
Engineering companies in lighting
Japanese lighting market
DVN Tokyo Workshop
Camera technologies
Varroc profile
Mondial Paris Auto Show
Vision congress
Volkswagen profile

2019 Reports

LA and CES
Geneva Motor Show
Volkswagen profile
Shanghai Auto Show
Materials in vehicle lighting
Status of Regulations
Integration of ADAS in Lights
IAA Frankfurt Auto Show
ISAL
Vehicle lighting in America
Interior lighting

2020 Reports

21 January - CES,
11 February - DVN Munich workshop,
17 March - Geneva autoshow,
22 April - US automotive lighting industry,
15 May - Marelli profile,
16 June - Exterior Ambient Lighting trend,
21 July - ADAS and Lighting,
29 September - Evolution of LED
27 October - Models Launched in July-October 2020
24 November – Audi profile
15 December – Lighting in developing countries