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Interactive headlights and tail light clusters help to raise the bar for safety in future

- Future lighting systems will project 3D holograms containing information onto the road and into the virtual space
- In-house centre of lighting excellence at the Wolfsburg plant

Wolfsburg (D) – Innovative Volkswagen lighting technology is helping to boost safety. At the same time, it is also opening the door to increasingly personalised vehicle design. At an international workshop, Volkswagen is now showcasing how the lighting systems of the future will communicate and increase safety even further.



HD LCD headlights allow new light-based assist systems such as “Optical Lane Assist” to be developed. The system projects lane markings onto the road, giving the driver a better idea of the vehicle width when driving through road works, for example.



Research vehicle¹⁾ with exterior HMI: information and warnings to other road users via LC-displays, integrated in in the doors as well as the front and rear ends.

Volkswagen’s engineers and designers use all of the technology available to them to improve safety with innovative lighting technology. One of their goals is to enhance the lighting functions in current vehicles and, as a result, improve road safety in the present day. This development work has culminated in the IQ. Light matrix LED headlights in the new Touareg, for example, which improve comfort and safety when driving at night. However, lighting designers and engineers have an eye on the future, too. The assisted driving cars of tomorrow will confront road users with new everyday situations – such as a lack of eye contact with drivers.

This is where new, interactive lighting functions come into play. The new lighting systems will include micro-pixel HD headlights with up to 30,000 light points and high-performance LED headlights as a low-cost alternative to cost-intensive laser light. For the first time, these micro-pixel HD

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headlights will project information directly onto the road, further improving safety.

This technology also enables new assist systems such as "Optical Lane Assist" to be brought to life. In this system, the headlights project lanes in front of the Touareg, giving the driver precise information about the width of the SUV (including trailer) and the distance to the road lane markings, for example at road works. The lanes also follow the radii of curves. Such useful and safety-enhancing lighting functions are being tested with the HD-LCD headlights.

Interactive tail light clusters for added safety

New systems such as the matrix tail light cluster will also revolutionise tail lights. Matrix tail light clusters will allow warnings to be incorporated into the tail lights, for example, enabling dangerous situations, like the area at the end of a traffic jam, to be defused using car-to-car communication. New assist functions, such as the micro-lens-based "Optical Park Assist" system, will improve safety while manoeuvring. This system will be able to project the vehicle's path onto the road to alert passers-by to the parking process.

In-house Volkswagen light tunnel reduces development times

To make sure it is suitably prepared for the challenges of the future, Volkswagen has opened its own centre of lighting excellence at the Wolfsburg plant. A 100 metre long, 15 metre wide and 5 metre high light tunnel has been in operation there since then in the heart of the Volkswagen world: its Research & Development division. In this tunnel, Volkswagen is using road simulations to test its lighting systems for today, tomorrow and beyond using road simulations. The tests can be reproduced and repeated. As a result, systems can be compared and evaluated in a light tunnel better than ever before. The centre of lighting excellence is also an ideal place to investigate how drivers and pedestrians perceive light. The light tunnel has also reduced the development time for new headlight, tail light and interior lighting systems, as the number of time-consuming night drives can now be reduced. Progress in light development can thus be implemented even more quickly into series production technology – increasing safety for the benefit of all road users.



¹⁾ Tiguan 2.0 TDI SCR 4Motion (NEFZ) 110 kW/ 150 hp fuel consumption in l/100 km: urban 6,2-6,0/extra-urban 5,1-5,0/combined 5,4-5,3; CO₂-emission combined in g/km: 143-140; efficiency class: B

About the Volkswagen brand: "We make the future real"

The Volkswagen Passenger Cars brand is present in more than 150 markets throughout the world and produces vehicles at over 50 locations in 14 countries. In 2017, Volkswagen delivered 6.23 million vehicles, including bestselling models such as the Golf, Tiguan, Jetta or Passat. Currently, 198,000 people work for Volkswagen across the globe. The brand also has over 7,700 dealerships with 74,000 employees.

Volkswagen is forging ahead consistently with the further development of automobile production.

E-mobility, smart mobility and the digital transformation of the brand are the key strategic topics for the future.
