

## 800 hours in pitch darkness to test the lights of the SEAT Leon

- **Alqueva, Portugal, one of the darkest areas in Europe, is the ideal place to test the lights developed by the SEAT Lighting Team**
- **It took 800 hours in the dark to test the headlamps and rear lights of the new Leon**
- **Their 100% LED technology opens up new possibilities for engineers in safety, comfort and design**
- **The wraparound arc of interior light, a technological challenge that will incorporate new functions by the end of the year**

**Martorell, 03/12/2020.** The Dark Sky Alqueva reserve in Portugal is a unique place in Europe to observe nebulae and constellations, such as Orion. It is a realm of darkness where the engineers of the SEAT Lighting team feel right at home. In the darkest areas of the planet they monitor the behaviour of other types of constellations, those that make up the headlamps and rear lights that they develop for models such as the SEAT Leon. **“Here we have once again verified that the lighting we have designed for the fourth generation adapts perfectly to the road thanks to the range and width of the headlight beams and the contrast and definition of the rear lights”** explains Carlos Elvira, head of Lighting and Signalling Development at SEAT.

**A constellation of 340 LED.** Full LED technology has opened up new possibilities for engineers, both in terms of design as well as safety and comfort. **“It enables us to have much more light on a much smaller surface area and thus to work with it much more efficiently”** says Magnolia Paredes, head of Electronic Lighting Development at SEAT. It was also a great challenge. **“It’s the result of a great development effort because, as it is a light source made up of an electronic component, we had to introduce drivers to control all the lighting elements”** explains Carlos.

**800 hours in the dark.** The team of engineers worked for approximately 2,500 hours on the design of the fourth generation SEAT Leon light assemblies. And for another 800 hours they tested them in the dark, either in the optical tunnel, which recreates night time driving conditions, or on roads in the four corners of the world. **“For us, testing in extreme climates is essential; in hot areas to test the operation of the electronics and in the cold to confirm the distribution of light on accumulations of ice”** says Carlos as he places markers on the edge of one of the roads in the area, leaving one metre between each one. With this test they certify that a dipped beam has the desired range, in this case 70 metres.

**Lighting the way.** In addition to its power and greater flexibility in where, how and when to direct the light beam, LED light stands-out for being much whiter than previous lighting technologies. With a colour temperature of 5,000 degrees Kelvin it is much closer to that of the solar spectrum. **“This makes it possible to better identify the shape and colour of objects you encounter on the road at night, even in areas as dark as Alqueva, and this enables you to anticipate any circumstances that may arise”** says Magnolia.

**LED reaction.** One of the keys to improving safety at the wheel is the quick reaction of this lighting technology. An LED diode responds 150 milliseconds faster than an incandescent bulb. This means that, for example, when driving at 120 km/h, the driver behind you can see your brake light five metres earlier. And inside the car, the arc that illuminates the top of the dashboard is also associated with an important safety function. **“Light signals are combined with acoustic signals to warn, for example, that a door is not properly closed or that a vehicle is approaching from behind as you prepare to get out of the car”** explains Magnolia.

**Constant innovation.** For the two engineers, the wraparound arc of light in the interior is one of the highest expressions of the turning point that LED technology represents. **“It was a great challenge for our programmers to obtain the maximum functional result”** says Carlos. Not only is it customisable, adapting the colour to the driver’s mood, but it also fulfils an important safety function, alerting to an improperly closed door or another car approaching from behind as you prepare to exit. And new features will be added by the end of the year. **“The light intensity will increase as you accelerate to make you more speed conscious and if you are travelling with children and activate the safety locks on the rear doors they will light up in red if they try to open them”** says Carlos.

SEAT is the only company that designs, develops, manufactures and markets cars in Spain. A member of the Volkswagen Group, the multinational has its headquarters in Martorell (Barcelona), sells vehicles under the SEAT and CUPRA brands, while SEAT MÓ covers urban mobility products and solutions. SEAT exports 81% of its vehicles, and is present in more than 75 countries. In 2019, SEAT sold 574,100 cars, posted a profit after tax of 346 million euros and a record turnover of more than 11 billion euros.

SEAT employs over 15,000 professionals and has three production centres – Barcelona, El Prat de Llobregat and Martorell, where it manufactures the Ibiza, Arona and Leon. Additionally, the company produces the Ateca in the Czech Republic, the Tarraco in Germany, the Alhambra in Portugal and the Mii electric, SEAT’s first 100% electric car, in Slovakia. These plants are joined by SEAT:CODE, the software development centre located in Barcelona.

SEAT will invest 5 billion euros through to 2025 in R&D projects for vehicle development, specially to electrify the range, and to equipment and facilities. The company aims to make Martorell a zero carbon footprint plant by 2050.

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