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Audi takes to the race track with the sportiest piloted driving car in the world

Ingolstadt/Hockenheim (ots) -

Audi has developed the world's sportiest piloted driving car. At the German Touring Car Masters (DTM) season finale, the Audi RS 7 piloted driving concept car will demonstrate its dynamic potential and driving capabilities for the first time on the Hockenheimring - at racing speed, without a driver.

"We are pressing forward with one of the most important trends in the automotive world with our technical solutions for piloted driving," says Prof. Dr. Ulrich Hackenberg, Board Member for Technical Development at AUDI AG. "The utter fascination of this development will be put on display at the DTM race in Hockenheim. A lap time of just over two minutes and lateral acceleration of up to 1.1 g speak for themselves."

Audi has long been a driving force in the area of highly automated driving. The brand's development efforts have produced a number of spectacular feats. In 2010, for instance, a driverless Audi TTS* conquered the legendary Pikes Peak mountain race circuit in Colorado, USA. Audi has time and again showcased the potential of the technology with demonstrations at the limit. With 560 hp and a top speed of 305 km/h (189.5 mph), the Audi RS 7 piloted driving concept car exemplifies Vorsprung durch Technik.

The Audi RS 7 piloted driving concept car on the race track

The Audi RS 7 piloted driving concept car is a technology platform with which Audi is exploring the possibilities of piloted driving at its most dynamic. On Friday, October 17 and Sunday, October 19 - prior to the start of the last DTM race - the concept car will complete one lap on the Hockenheim ring without a driver. The large, five-door coupe is largely identical to the production model, but its electromechanical power steering, the brakes, the throttle valve and the eight-speed tiptronic that distributes the power to the mechanical quattro drive system are controlled automatically.

There are two primary technological considerations during piloted driving at the physical limit: the highly precise orientation of the vehicle on the road and absolute control of the vehicle at the handling limits.

The technology platform uses specially corrected GPS signals for orientation on the track. Accurate down to a centimeter, these differential GPS data are transmitted to the vehicle via WLAN according to the automotive standard and redundantly via high-frequency radio. Parallel to this, 3D camera images are compared in real time against graphical information stored on board. The system searches in each of the countless individual images for several hundred known features, such as building patterns behind the track, which it then uses as additional positioning information.

Control of the vehicle at the handling limits is another outstanding feature of the Audi RS 7 piloted driving concept car. Comprehensive on-board networking coupled with the highly precise control of all actors relevant to driving enable the technology platform to drive at the physical limits. The Audi engineers intensively investigated piloted driving at the handling limits, putting the technology platform through several thousand test kilometers on a variety of routes.

To demonstrate its capabilities, the Audi RS 7 piloted driving concept car will drive a clean racing line at the Hockenheimring - with full throttle on the straights, full braking before the corners, precise turn-in and perfectly metered acceleration when exiting the corners. Forces of over 1.3 g occur during braking, and lateral acceleration in the corners can reach 1.1 g. Tests on the track in Hockenheim suggested an expected top speed of 240 km/h (149.1 mph) and a lap time of 2 minutes and 10 seconds.

The race track is also the most demanding test bed for production when it comes to piloted driving. The future systems must also work extremely precisely and with zero errors in critical situations. They therefore must be capable of properly assessing the current situation even at the physical limit. This test bed provides the Audi engineers with a variety of insights for production development, such as for the development of automatic avoidance functions in critical driving situations.

The lap by the RS 7 piloted driving concept car can be followed via live stream (www.audimedia.tv/en). The broadcast begins at 12:45 p.m. on October 19, 2014.

Press material has been compiled in a digital press folder (www.audi-mediaservices.de/presskit/en/piloted_driving_2014).

* Fuel consumption of the models named above:

Audi TTS:

Combined fuel consumption in l/100 km: 7,5 - 6,9;

Combined CO₂-emissions in g/km: 174 - 159

The fuel consumption and the CO₂ emissions of a vehicle vary due to the choice of wheels and tires. They not only depend on the efficient utilization of the fuel by the vehicle, but are also influenced by driving behavior and other non-technical factors.

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