

## Press Release

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# SARTRE road train premiere on public roads

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For the first time ever a road train comprising a Volvo XC60, a Volvo V60 and a Volvo S60 plus one truck automatically driving in convoy behind a lead vehicle has operated on a public motorway among other road users. The historic test in Spain was highly successful.

Vehicle platoon tests in the SARTRE (Safe Road Trains for the Environment) project - a joint venture between Ricardo UK Ltd, Applus+ Idiada, Tecalia Research & Innovation, Institut für Kraftfahrzeuge Aachen (IKA), SP Technical Research Institute, Volvo Technology and Volvo Car Corporation - are making progress. One major step forward was taken last week on a motorway outside Barcelona - the first-ever test drive of a road train among other road users.

"We covered 200 kilometers in one day and the test turned out well. We're really delighted," says Linda Wahlström, project manager for the SARTRE project at Volvo Car Corporation.

A road train consists of a lead vehicle driven by a professional driver followed by a number of vehicles. Building on Volvo Car Corporation's and Volvo Technology's already existing safety systems - including features such as cameras, radar and laser sensors - the vehicles monitor the lead vehicle and also other vehicles in their immediate vicinity. By adding in wireless communication, the vehicles in the platoon "mimic" the lead vehicle using Ricardo autonomous control - accelerating, braking and turning in exactly the same way as the leader.

### Improved driver environment - among much else

The project aims to deliver improved comfort for drivers, who can now spend their time doing other things while driving. They can work on their laptops, read a book or sit back and enjoy a relaxed lunch.

Naturally the project also aims to improve traffic safety, reduce environmental impact and - thanks to smooth speed control - cut the risk of traffic tailbacks.

One lead vehicle and four trailing vehicles - consisting of a Volvo S60, a Volvo V60 and a Volvo XC60 plus a truck - made up the historic road train in Spain.

"Driving among other road-users is a great milestone in our project. It was truly thrilling," says Linda Wahlström. The vehicles drove at 85 kilometers an hour. The gap between each vehicle was just six metres. "During our trials on the test circuit we tried out gaps from five to fifteen metres," relates Linda Wahlström.

### Quick acclimatisation

Sitting in a car just six meters behind another one while travelling at 85 km/h and relying totally on the technology may feel a bit scary. But the experiences gained so far indicate that people acclimatize very quickly.

The three-year SARTRE project has been under way since 2009. All told, the vehicles in the project have covered about 10,000 kilometers. After the test on the public roads in Spain, the project is now entering a new phase with the focus on analysis of fuel consumption.

"We've learnt a whole lot during this period. People think that autonomous driving is science fiction, but the fact is that the technology is already here. From the purely conceptual viewpoint, it

works fine and road train will be around in one form or another in the future," says Linda Wahlström.

She continues:

"We've focused really hard on changing as little as possible in existing systems. Everything should function without any infrastructure changes to the roads or expensive additional components in the cars. Apart from the software developed as part of the project, it is really only the wireless network installed between the cars that set them apart from other cars available in showrooms today."

## **NOTES TO EDITORS**

### **About the SARTRE project:**

The SARTRE project stands for Safe Road Trains for the Environment. Part-funded by the European Commission under the Framework 7 program, SARTRE is led by Ricardo UK Ltd and comprises collaboration between the following additional participating companies: Idiada and Tecnalia Research & Innovation of Spain, Institut für Kraftfahrzeuge Aachen (IKA) of Germany and SP Technical Research Institute of Sweden, Volvo Car Corporation and Volvo Technology of Sweden.

SARTRE aims to encourage a step change in personal transport usage through the development of safe environmental road trains (platoons). Systems are being developed in prototype form that will facilitate the safe adoption of road trains on un-modified public highways with full interaction with non-platoon vehicles. The project is addressing the three cornerstone transportation issues of environment, safety and congestion while at the same time encouraging driver acceptance through the prospect of increased "driver comfort". The objectives of SARTRE may be summarized as:

1. To define a set of acceptable platooning strategies that will allow road trains to operate on public highways without changes to the road and roadside infrastructure.
2. To enhance, develop and integrate technologies for a prototype platooning system such that the defined strategies can be assessed under real world scenarios.
3. To demonstrate how the use of platoons can lead to environmental, safety and congestion improvements.
4. To illustrate how a new business model can be used to encourage the use of platoons with benefits to both lead vehicle operators and to platoon subscribers.

If successful, the benefits from SARTRE are expected to be significant. The estimated fuel consumption saving for high speed highway operation of road trains is in the region of 20 percent depending on vehicle spacing and geometry. Safety benefits will arise from the reduction of accidents caused by driver action and driver fatigue. The utilization of existing road capacity will also be increased with a potential consequential reduction in journey times. For users of the technology, the practical attractions of a smoother, more predictable and lower cost journey which offers the opportunity of additional free time will be considerable. The SARTRE project formally started in September 2009 and will run for a total of three years. <http://www.sartre-project.eu/>

### **Partners**

**SP Technical Research Institute of Sweden** is part of the SP Group, consisting of the parent company and its subsidiaries CBI, Glafo, SIK, SMP, YKI and JTI. It constitutes a substantial group of institutes for research, innovation and sustainable development of industry and society. The Group covers a wide technical range, with laboratory resources that are fully up to national and international standards. A staff of about 1 000, of whom half are university trained and about 250 have research scientist training, constitute an important knowledge resource. Since November 2009, the SP Group has been wholly owned by the state holding company, RISE Holding AB. For more information, visit <http://www.sp.se/en/>

**Ricardo plc** is a leading independent technology provider and strategic consultant to the world's transportation sector and clean energy industries. The company's engineering expertise ranges from vehicle systems integration, controls, electronics and software development, to the latest driveline and transmission systems and gasoline, diesel, hybrid and fuel cell power train technologies, as well as wind energy and tidal power systems. A public company listed on the London Stock Exchange, Ricardo plc posted sales of £162.8 million in financial year 2010. Ricardo is participating in the SARTRE project through its UK business, Ricardo UK Ltd. For more information, visit <http://www.ricardo.com/>

**Tecnalia Research & Innovation** is an all-round supplier of contracted R+D+I, which has a complete range of services and products ranging from foresight and technology surveillance to new technology based business launching. Of this wide range of methods for collaborating with companies, development of R&D projects and technology consultancy services stand out. Tecnalia operates in its reference markets through five divisions: INDUSTRY AND TRANSPORT, INNOVATION AND SOCIETY, ICT-EUROPEAN SOFTWARE INSTITUTE, HEALTH, AND SUSTAINABLE DEVELOPMENT, and 16 business units. This helps the technology centre to specialise by orienting research towards the needs of companies in these key sectors. Its mainly objective is to actively contribute to sustainable development in Society through Research and Technological Transfer. Over the years Tecnalia has taken part in more than 85 European projects, 24 of which remain ongoing. For more information visit, <http://www.tecnalia.com/>

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**Applus+ IDIADA**, as a global partner to the automotive industry, provides complete solutions for automotive development projects worldwide. Applus+ IDIADA's Technical Centre is located 70 km south of Barcelona (Spain), having subsidiaries and branch offices in 16 European and Asian countries with a total work force of around 1000 employees. The core services Applus+ IDIADA provides are: Engineering, Proving Ground and Homologation. Main fields of engineering activity are power train, emissions, noise & vibration, vehicle dynamics, braking systems, fatigue & durability and passive safety. Applus+ IDIADA's proving ground is recognised as one of the best facilities in the world, and is renowned for the quality of its customer service. As a multi-user facility, safety and confidentiality are of the highest priority. Weather conditions make this facility the first choice regardless of the type of testing. For more information, visit <http://www.idiada.com/>

**The Institut für Kraftfahrzeuge of the RWTH Aachen University (IKA)** with its centennial history is engaged in education and in industry-orientated research on vehicles - e.g. cars, commercial vehicles, busses and motorcycles - as well as neighbouring issues such as traffic and environmental conditions (noise, exhaust gas, etc.). ika is headed by Univ.-Prof. Dr.-Ing. Lutz Eckstein. In 2009 IKA had more than 200 employees. IKA increasingly links research projects with development tasks that have to be financed by third-party funding. IKA's activities are tailored to industrial demands and comprise the departments: Chassis - Body - Drive train - Acoustics - Electronics - Driver Assistance - Strategy and Process Development. The Driver Assistance department focuses on the development and assessment of driver assistance systems. Since the first introduction of advanced driver assistant systems (ADAS) IKA has been one of the leading test facilities for independent tests and certifications of the system's components and overall applications. For more information, visit <http://www.ika.rwth-aachen.de/>

**Volvo Car Corporation** is one of the car industry's strongest brands, with a long and proud history of world-leading innovations. Volvo sells around 450.000 cars per year in about 120 countries and comprising some 2,000 sales outlets and service workshops around the world. Volvo Car Corporation's headquarter and other corporate functions are based in Gothenburg, Sweden. For more information, visit <http://www.volvocars.com/> and <http://www.media.volvocars.com/>

## Keywords:

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