

CSR/GE1878/JHU

Geneva, 9 October 2013

## **IRU Position on Road Safety related Advanced Driver Assistance Systems (ADAS)**

*Unanimously adopted by the IRU Commission on Road Safety (CSR) in Brussels, Belgium, on 1 October 2013.*

### **Clarification on the role of the driver and ADAS while operating a vehicle.**

#### **I. ANALYSIS**

In recent decades vehicle manufacturers and their system suppliers have made great efforts to improve vehicle technology and traffic safety. One of the major improvements has been the introduction of Advanced Driver Assistance Systems.

##### **1. Definition**

Advanced Driver Assistance Systems have been designed to help the driver in the driving process with the aim of improving road safety.

These supporting systems constantly monitor the vehicle surroundings as well as driving behaviour to detect potentially dangerous situations at an early stage. In critical driving situations these systems warn and actively support the driver and, if necessary, intervene automatically in an effort to avoid a collision or to mitigate the consequences of an accident.

Examples of these systems are Adaptive Cruise Control, Autonomous Emergency Braking Systems, Lane Departure Warning Systems, Collision Avoidance Systems, Night Vision, Traffic Sign Recognition, Blind Spot Detection, Driver Drowsiness Detection, to name but a few.

##### **2. Impact of ADAS on road safety**

Bearing in mind the findings of the ETAC study, which highlight that 85% of all accidents are caused by human error, it is certainly the right approach to support the driver in the driving process.

When analysing the potential of ADAS from a road safety perspective, several scientific studies have been conducted. Some of the results follow:

- An autonomous emergency braking system which is able to detect moving and stationary vehicles and obstacles can warn the driver and perform a braking manoeuvre autonomously could prevent up to 12% of all truck accidents;
- The safety potential of a “turning-assistant system” and an intelligent rear view system accounts for 5% of avoided accidents related to all truck accidents.

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Detailed analysis reveals that this amount covers 70% of all truck accidents with vulnerable road users; and

- The potential safety benefit of a Lane Departure Warning System was determined to be up to 2%. This small share nevertheless covers one third of all truck accidents caused by lane departures.

It should, however, also be noted that the ADAS can have certain negative effects on road safety. It can lead to:

- Reduction in drivers' awareness - this means that drivers drive less carefully as they rely on the integrated systems and believe that these systems will solve any critical situation;
- “Accepted risk” behaviour - which means being aware of driver assistance systems, drivers tend to take more risks, compensating for the original safety gain; and
- Driver information overload - the driver is overloaded by, or gets used to, warning messages and does not react appropriately.

Bearing in mind that more in depth research is needed on the man machine interface, overall it can however be concluded that ADAS helps to improve road safety and the IRU has in fact called on credible partners involved in the promotion of road safety to introduce on a voluntary basis, and before they become mandatory, proven effective active and passive safety systems.

### **3. Operating a vehicle in a safe way – The role of the driver and the role of ADAS**

Concerns regarding who can guarantee that ADAS do not experience safety failures and who is finally liable when it comes to technical defects highlighted a fundamental question - the question of the role of the driver *vis-à-vis* ADAS.

In principle there are two separate positions, the first being that the driver should always be in charge of the vehicle as prescribed in national and international law. The other position being that the vehicle should take 100% control when dangerous situations are encountered.

However, given the different phases of an accident, the idea that the driver shall drive a vehicle in that way that he is able to control his vehicle at all times and the operating processes of ADAS are not in conflict with each other as:

- a) ADAS systems provide the means for the driver to interrupt or override;
- b) ADAS can be switched off without endangering road safety;
- c) ADAS' purpose is to optimise, at a technical level, driver-initiated actions; and
- d) ADAS operates in emergency situations when the driver has lost or is about to lose control of the vehicle.

In conclusion, this means that ADAS only supports safe driving. This also means that unless there is a complete technical failure of part of the vehicle or of the system (e.g. complete failure of the brakes) the driver will stay (partly) liable for accidents.

## **II. IRU POSITION**

Recalling the IRU Resolution on the “UN Decade of Action for Road Safety”, road safety has always been, is and will remain a top priority issue for the road transport industry and that for true professionals every accident is one accident too many.

In addition, the road transport sector is committed to avoiding human suffering caused by accidents and, therefore, considers accident prevention as a key priority.

More specific to the road safety aspects of ADAS, the IRU has called upon credible partners involved in the promotion of road safety to introduce on a voluntary basis, and before they become mandatory, proven effective active and passive safety systems.

The driver shall drive a vehicle in that way that he is able to control his vehicle at all times. Harmonised ADAS shall only support safe driving and shall take over in emergency situations when the driver has lost or is about to lose control of the vehicle.

A practical training session for the driver on ADAS should be foreseen when a new vehicle is purchased and, where feasible, during refresher training courses.

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