

Advanced Emergency Braking Systems for passenger cars and light commercial vehicles

Resolution taken by the DVR Board on 9 September 2016 based on recommendations of the DVR Executive Committee on Vehicle Technology

Background

DVR has been supporting the development and implementation of driver assistance systems as they considerably improve road safety for many years.¹ Advanced Emergency Braking Systems (AEBS) show a very high potential in crash avoidance and crash mitigation. This is demonstrated by a range of studies, for example by German Insurers Accident Research (UDV)², Transport Research Laboratories (TRL)³, Insurance Institute for Highway Safety (IIHS)⁴ or the Allianz Versicherungs-AG⁵.

The basic functions of AEBS are to either avoid or at least mitigate a collision with a vehicle ahead or a stationary vehicle. This can be achieved by warning the driver and, if applicable, by an autonomous braking of the vehicle. Systems with enhanced functions also respond on pedestrians, bicyclists and other road users.

¹ See DVR website for its resolutions on Advanced Driver Assistance Systems (2006), Vienna Convention on Road Traffic (2010) and Highly Automated Driving (2015). Since 2006 the "best co-driver" campaign has promoted implementation and use of driver assistance systems (bester-beifahrer.de).

² "Advanced Driver Assistance Systems - An investigation of their potential safety benefits based on an analysis of insurance claims in Germany"; research report FS 03; UDV; 2011

³ "Benefit and Feasibility of a Range of New Technologies and Unregulated Measures in the fields of Vehicle Occupant Safety and Protection of Vulnerable Road Users" Final Report; TRL; 2015

⁴ Measuring Crash Avoidance System Effectiveness with Insurance Data; IIHS; 2013

⁵ "Wirksamkeit von Fahrerassistenzsystemen mit zunehmendem Automatisierungsgrad"; AZT Automotive GmbH; 2015

The European „General Safety Regulation“ (661/2009/EC) has already made the fitment with AEBS mandatory for commercial vehicles (with the exemption of category N1) as well as for buses and coaches.⁶

Consumer initiatives, such as Euro NCAP⁷, already reward vehicles that offer AEBS as standard equipment. In particular, the 5 stars rating can only be achieved by car models which are extensively equipped with advanced driver assistance systems, such as e.g. AEBS.

According to a study by the German Automobile Club (ADAC) advanced emergency braking systems are already offered for about 85% of all passenger car models that are available in Germany.⁸ DVR therefore assumes that there are no technical barriers preventing the implementation of AEBS in new vehicles in the future.

DVR estimates that recent AEBS, subject to their scope of operation, could prevent or mitigate about 20% to 40% of car-to-car accidents with injuries to persons if these systems were applied on a wide-scale. DVR therefore advocates the implementation of AEBS focusing on the basic functions (detection of vehicles) first. In a later phase, enhanced functions (detection of bicyclists and pedestrians) should also be considered.

The requirements gained from the real world accident occurrence must be considered when developing AEBS. This means that Advanced Emergency Braking Systems also need to be effective at higher speeds, for example on rural roads or motorways. The reduction of the vehicle's velocity has to be sufficient to substantially increase the crashworthiness compared to unbraked collisions.

In the framework of the „General Safety Regulation“ the European Commission intends to gradually introduce mandatory equipment of passenger cars and light commercial vehicles in the European Union with AEBS from 2020 onwards.

⁶ Recommendations are considered in a separate DVR resolution. See DVR resolution „Empfehlungen zu Notbrems-Assistenzsystemen für Nutzfahrzeuge“ (recommendations regarding AEBS for commercial vehicles); 2016.

⁷ European New Car Assessment Programme

⁸ ADAC Position zum Notbremsassistenten in Pkw und leichten Nutzfahrzeugen (position paper on AEBS for passenger cars and light commercial vehicles), 01-2016

Resolution

Advanced Emergency Braking Systems improve road safety. Therefore, DVR welcomes any measure taken by industry, trade, insurers, fleet operators and other organisations aiming at increasing the adoption rate of AEBS.

Furthermore, DVR recommends that fitment of AEBS should be made mandatory for passenger cars and light commercial vehicles (categories M1 and N1). This should initially apply to basic functions and later to extended functions which consider real-world accident typologies. The reduction of the vehicle's velocity has to be sufficient to substantially increase the crashworthiness compared to unbraked collisions.

Therefore, DVR supports the plans of the European Commission to include the future mandatory equipment of new vehicles with advanced emergency braking systems in the framework of the „General Safety Regulation“.

signed

Dr. Walter Eichendorf

President