



Gesellschaft für medizinische und technische Traumbiomechanik
GMTTB

Verein eingetragen beim Amtsgericht in 87435 Kempten, VR 200535

Sekretariat: GMTTB, Höhenstrasse 56, D-87629 Füssen

International traffic experts support the EU Parliament and call for the implementation of EDR systems – Event Data Recorder – into every new car

On October 15th, 2011, the recently founded Society for Medical and Technical Trauma Biomechanics (GMTTB, Germany, Switzerland, Austria) held a seminar in Lindau (Bodensee, Germany) on the technical and legal implications of Event Data Recorders. As a result of the 12 presentations by internationally known experts it was decided to work out a recommendation to the attention of the European Union and national authorities. All presentations are available at <http://www.traumbiomechanikgmttb.de/aktuelles/> Download: „Vorträge GMTTB Herbstseminar 2011“, user: *crash* Passwort: *record-vortraege*

Executive summary

1. Due to ABS and skid-prevention systems available in today's vehicles, accident-related tyre marks are often not or only partially detectable, furthermore, any failure of an ESP device can hardly be traced back.
2. The medical and legal assessment of a collision/an injury must be based on a reliable, verifiable and transparent technical analysis – “more justice”.
3. Advanced Driver Assistance Systems that directly and automatically interfere with the active driving process render the back-tracking of any traffic failure difficult.
4. Accident and injury prevention could profit from EDR data analysis. European and US systems should be standardised in order to harmonise data acquisition and comparison.
5. EDR systems may help car manufacturers to exclude alleged technical defects (product liability) in cases where in reality inadequate driver action is the cause for an accident.
6. Accident reconstruction and analysis of collisions involving the group of pedestrians and two-wheelers whose relative share increases is difficult by conventional means (see 1.).
7. Studies in Europe and the US show a favourable cost-benefit relation of EDR systems.
8. Traffic experts have called for the mandatory installation of EDR systems already for decades.
9. Judicial problems emerging from a mandatory installation law by authorities or insurance companies seem to be resolvable in agreement with the various law systems as practised in the free world.
10. On September 27th, 2011 the EU Parliament has adopted a resolution asking the EU Commission to work out a road map until the end of 2012 with respect to the mandatory introduction of EDR systems.

Conclusions

1. The Society for Medical and Technical Trauma Biomechanics (GMTTB) strongly supports the request of the EU Parliament concerning the introduction of EDR systems.
2. Amount, quality and access protocols of the data recorded must be standardised in order to ensure the reliability, accuracy and transparency.

Vorstand

Dr. med. Uwe Moorahrend, Unfallchirurg, 1.Vorsitzender, Füssen

Prof. Dr. med. Felix Walz, Biomechaniker, 2.Vorsitzender, Zürich

Dr. med. Wolfram Hell, Biomechaniker, Schriftführer, München

Prof. Dr. Ing. Anton Brunner, Unfallforscher, Kassierer, Kreuzlingen

Preamble

Since the introduction of mechanical driver assistance devices more than 40 years ago, the number of electronic devices assisting the driver of a passenger car has increased considerably. Advanced Driver Assistance Systems, or ADAS help drivers in the driving process in that they facilitate relaxed driving conditions and support adequate driver reactions in difficult traffic situations, in particular, as traffic density and associated driver stress increase. The systems should therefore improve overall road safety. On the other hand these systems render accident reconstruction and analysis more difficult; e.g., skid marks are often hardly detectable when ABS systems are involved, likewise a possible failure of an ESP device may be detected with considerable difficulty only. Therefore, Event Data Recorders with the capability to document the technical state of the relevant vehicle functions and driver related activities briefly before, during and after an accident become more and more inevitable. Since such devices document the event data objectively, it should be in the common interest of all involved parties, e.g. legislation, car manufacturers, traffic participants, political interest groups, that such data is acquired, stored, secured, and where necessary disclosed..

Motivation

With modern cars, a decreasing amount of accident-related traces and clues such as skid marks are available for the reconstruction of the accident. In considerable number of collisions, especially where multiple collisions are concerned, a reliable reconstruction is not possible. After the event, the contribution of ADAS to the mitigation of the crash severity is hard to estimate today.

Yet, the medical and legal assessment of a collision and its associated injuries can only be based on a solid and verifiable technical analysis. The software tools available for accident reconstruction are helpful but not always undisputed; moreover, they require reliable input data on the basis of accident documentation.

Drivers and passengers of cars benefit from increasing passenger safety measures. Accordingly, the lack of accident information is of consequence in particular in collisions involving weaker, less protected traffic participants such as pedestrians and two-wheelers, whose relative share in the statistics of accident victims is increasing. Given the general goal of protecting human life and health, the cost or technical implementation difficulties of crash recording devices can not be traded against the benefits of better accident analysis and thereby also of an improvement of long term preventive measures. Synergies are furthermore seen with the eCall function available as optional or even standard equipment in the near future since the triggering of this function requires the input of an Event Data Recorder.

Further reasons calling for the introduction of EDR are

1. The unreliability of witness statements, therefore a need to improve legal certainty
2. The right of accident victims to "more justice"
3. Acceleration of court and insurance case management
4. Issues related to product liability
5. Fraud

Experience up to date

A cost-benefit assessment published by an EU report¹ summarises as follows (p 144): „As can be seen, benefits are estimated to outweigh costs by a factor 7“.

In the USA, EDR systems are already widely common (e.g., integrated in the air bag module) and storage details (choice of parameters and digitization) are in the process of being standardised. As of today, 60 million cars are already equipped, and a vast majority of the new cars will be delivered with an EDR system (estimation of the NHTSA). Data can be read out relatively easily due to the standardisation². Starting in 2015, EDR systems will be required in all new cars in the US. Air bag modules in many European cars store relevant event data; amount and quality, however, are different.

Since 1992 about 160'000 Toyota cars have been equipped with EDR systems by the Folksam Insurance company in Sweden. Predominantly in the UK and in Germany there are about 100'000 cars of fleet owners, mainly with the UDS system (Unfall-Daten-Speicher). Volvo and Renault cars allow for the readout and analysis of the data for accident reconstruction in a transparent way. 81% of the 18-20 year old drivers and 53% of those 21-25 years agreed voluntarily that the Axa Insurance Company would build in such devices in their cars in exchange for a premium reduction (about 30'000 as of September 2011). The results in terms of accident reconstruction potential and influence on the driving behaviour are favourable in this subset, in particular in the studies mentioned above concerning accident data of car fleets. Although positive effects are expected in general, a literature survey has shown no clear evidence so far in case of young drivers.

The first VERONICA project of the EU (*Vehicle Event Recording based on Intelligent Crash Assessment*) was performed within the framework of a call of the EU Commission during the years 2004 to 2006 involving many partners. The follow-up project ended in 2009. Partially based on these studies and with reference to the 4th European traffic safety programme³ the political statement of the EU Commission as of July 2010 included a mandatory introduction of EDR systems. The results of the discussions are published in document⁴. A resolution of the EU Parliament concerning traffic safety on September 27th 2011 asked the EU Commission to work out a road map until the end of 2012 with respect to the mandatory introduction of EDR systems. Our Society for Medical and Technical Trauma Biomechanics (GMTTB) strongly supports this initiative.

For about 40 years, the German Meeting for Legislation on Traffic Safety has repeatedly requested EDR devices in automobiles, again in January 2011 (document AK 7). Hindrance and delay were due to questions of sovereignty (national countries, EU), cost, reliability, data protection and security. Moreover, there was political opposition.

¹ Cost-benefit assessment and prioritisation of vehicle safety technologies. Framework Contract. TREN/A1/56-2004, Lot 2: Economic assistance activities. FINAL REPORT. Ref: TREN-ECON2-002

² Event Data Recorders: 49 CFR Part 563, Docket No NHTSA-2011-0106, RIN 2127-AK71

³ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Towards a European road safety area: policy orientations on road safety 2011-2020, Brussels, 20.7.2010 COM(2010) 389 final

⁴ http://ec.europa.eu/transport/road/consultations/2010_03_01_tachographs_en.htm

Legal requirements, data protection

Even in cars equipped with a EDR system, the recorded data are currently not generally available in Europe; only some insurance companies and a few car manufacturers permit to fully analyse their data in certain cases. With regard to legal issues, in particular equality before the law, it is crucial that only a well defined set of data is stored in a reliable, verifiable and failure-proof manner. In order to read out and analyse EDR data it must be ensured that police forces are capable to save data without e.g. the danger of undue data over-writing. Furthermore, the accuracy of recordings can be tampered, e.g. by a change of tyre or wheel dimensions, tyre wear, installation location and measurement methods. Unfortunately, amount, choice, quality and access protocol of EDR data are not standardised as of today. These shortcomings impeding a uniform and transparent analysis by certified experts and public authorities must be overcome.

In general, police forces presently do not have the various software and access tools necessary to read out and fully analyse the various EDR data sets in use today. Therefore, insurance companies and car manufacturers are invited to cooperate in spite of possible legal (liability issues) and financial interest.

In order that a pertinent legislation can later be introduced, all technical issues mentioned above have to be finalized and well defined; norms have to be developed. EDR systems have in particular to be certified and recalibrated in regular intervals.

Judicial problems emerging from a mandatory installation law by authorities or insurance companies seem to be resolvable within the framework of the criminal as well the civil, employment and insurance law. Predominantly in criminal issues no hindrance in view of data protection (privacy) can be seen if a court has mandated the analysis or the confiscation of the EDR data or device.