

Stakeholder Consultation Meeting

On the deployment of Event Data Recorders (EDRs)

Brussels, 5th June 2014

Objective of the consultation

This consultation aims to collect the opinions of stakeholders regarding the deployment on motor vehicles of event data recorders to improve road safety and access to justice. The findings from this consultation will be taken into account in the final reporting of the study.

What are Event Data Recorders?

An event data recorder (EDR) records information about the status of a vehicle during a collision event or a suspected collision event. Data is only recorded during the collision and for a short time (typically less than one minute) before and after the collision.

Who uses EDRs?

There are many applications for the data recorded by EDRs:

- Manufacturers use information from EDRs in real-world collisions to supplement laboratory crash test data in the development of safer vehicles
- Governments can use EDR data to develop better vehicle safety legislation
- The police and courts may use EDR data to establish the facts relating to a road traffic accident
- Fleet managers can use EDR data to improve the targeting of driver training and vehicle maintenance schedules

Which vehicle types are being considered?

The options for EDR fitment are being considered for the following fleets:

- Heavy goods vehicles
- Light goods vehicles
- Buses and Coaches
- Passenger cars (for commercial and non-commercial use)

Disclaimer

Please note that this document has been drafted for information and consultation purposes only. It has not been adopted or in any way approved by the European Commission and should not be regarded as representing the views of the Commission.

1 Scope and aim of this study

The aim of this study is to assist the Commission in deciding whether the fitting of EDR in all vehicles or certain categories of vehicles could result in an improvement of road safety or have other possible consequences that would justify the costs associated with the adoption of EU legislative measures. The study will quantify the costs and benefits for heavy goods vehicles, light goods vehicles, buses and coaches, and passenger cars (for private and commercial use).

The specific objectives of the study are to:

- analyse the benefits that could result from the installation of EDR, particularly for road safety but not excluding other benefits;
- consult with stakeholders; and
- provide policy recommendations based on a cost-benefit analysis of the possible legislative or other measures.

2 Introduction

An EDR is a device mounted in a vehicle that will record objective information about a collision that will enable the police, accident investigators, manufacturers and researchers to understand better the causes of collisions and what may be done to mitigate them. An EDR records only information associated with an event that is, or is suspected to be, a collision. An EDR typically records information about vehicle systems immediately before, during and after a collision; the total recording time is typically less than 30 seconds.

An EDR is thus explicitly different to a driver or journey monitoring device. These latter systems typically record data about the vehicle and its location continuously, often sending data to a central server via the mobile phone network. Many retrofit systems, particularly in the fleet and insurance markets, include both driver/journey monitoring and EDR functionality.

Historically, many of the major road safety advances have been achieved by improving secondary safety, for example with the improvement of vehicle structures and occupant restraint systems through the implementation of the EC frontal and side impact directives. In the future, however, the consensus view is that primary and active vehicle technologies will deliver significant safety improvements. These systems typically act before the collision to either mitigate or avoid the accident and make a decision to activate based on data collected from sensors that monitor the vehicle state as well as the road environment. One of the main issues at stake is that it is difficult to evaluate the effectiveness of these systems, because the precise conditions of the pre-crash phase are not known and an external judgement is always required, which is inherently subject to error. As well as providing an accurate record of the vehicle state and the functions of the safety systems during an accident, EDR data also provide the prospect of significantly enhancing the accuracy of predicting the effectiveness of active systems. This will allow road safety policies and regulatory actions to be targeted at those systems most effective at realising casualty reductions on European roads. EDR data also provide the prospect of a large and detailed dataset that can be used for on-going monitoring of road safety systems and policies.

3 Policy background

Point 87 of the European Parliament resolution of 27 September 2011 on European road safety 2011-2020¹ called on the Commission:

to provide for the phased introduction, initially in rented vehicles and subsequently also in commercial and private vehicles, of an integrated accident recorder system with a standardised readout which records relevant data before, during and after accidents.

In addition, the European Commission committed to examine the added value of installing Event Data Recorders (EDR) on improving road safety in Europe, in particular for professional vehicles². This is part of the steps that the Commission is taking to achieve the target of halving the overall number of road deaths in the European Union by 2020, compared to a 2010 baseline.

4 Overview of interim study findings

To date, the main findings of the project are as follows:

- European EDR fitment to passenger cars appears extensive, with most M1 vehicles already being equipped with an EDR. Typically, the EDR is linked to the airbag control module. The situation is similar for small commercial vehicles (N1). However, the fitment of EDRs to large commercial vehicles (N2/N3) and buses and coaches (M2/M3) is less well documented, and is more variable in terms of how the system is organised and the type of data recorded. The available evidence suggests that many fleets are equipped with continuous monitoring systems, primarily to improve driving efficiency and also to ensure safety for drivers and passengers. Some systems on large commercial vehicles (at least in the US) include EDRs that can also record accident events.
- The benefits of EDRs are consistently documented in the literature in terms of the following areas:
 - **Road safety** – studies show a range of reductions in accidents when EDRs are fitted because the presence of the system affects driver behaviour resulting in the societal benefit of fewer accidents. However, the evidence appears limited to commercial fleets; today most ordinary car drivers are unaware that an EDR is fitted to their vehicle.
 - **Vehicle design** – manufacturers can obtain information on accident causation and the secondary safety performance of their vehicles, and use these data to improve future vehicle designs and safety systems.
 - **Accidentology and accident reconstruction** – accurate information from before, during and after an accident provides robust information to assist in the determination of accident causation and allows accident researchers to accurately assess the effectiveness of countermeasures, particularly those that help avoid accidents. This means that research and

¹ 2010/2235(INI)

² Towards a European road safety area: Policy orientations on road safety 2011-2020

policy recommendations are focussed on the safety advances that have the greatest societal benefit.

- **Legal proceedings** – information on the accident means that the liability for many accidents can be determined accurately and objectively, therefore reducing time and legal costs and providing road users and society with access to justice. Collisions between vehicles and vulnerable road users (cyclists and pedestrians) may benefit less from current EDR systems because the collision may not be detected and recorded.
- The main concerns or dis-benefits of EDR fitment relate to the legal and privacy issues for the data, who has access to them and under which circumstances. Furthermore, larger vehicles appear to have less standardisation with respect to EDR design and capability, meaning that standardising EDRs may therefore result in greater cost.
- US specification has minimum data frequency requirements that are exceeded by many current systems, thus demonstrating that the state of the art exceeds the current US EDR requirements stipulated by the US regulation 49 CFR Part 563³. Higher frequency data would provide a better and more complete understanding of accident events thereby realising more of the expected benefits, and this appears to be technically achievable by current systems.
- Limited information was forthcoming on system costs and these depend on the type of EDR system considered. For passenger cars and vans, EDRs seem to be largely fitted already so additional costs may be negligible. Other vehicle types are more variable in what is recorded and in terms of system architecture; costs may therefore be greater for these vehicles.
- Legal advice from the United Kingdom on the application of European Directive 95/46/EC (the 'data protection Directive') reported that:
 - Ownership of EDR data was not clear, although the car owner would most likely be considered the owner of the data.
 - Access to the EDR data was possible by any party able to access the EDR port. Further controls in this area would be technically possible and could be desirable to control access and prevent data modification or deletion.
 - EDR data, by itself, cannot be linked to an individual and therefore do not constitute personal data, meaning that the 1988 Data Protection Act does not apply. Thus, any party can use anonymised EDR data. Should the party accessing the data be in the possession of other data that renders the EDR data personal, the Act applies and contains adequate processes and controls to protect personal data.
 - The situation in five other European countries (France, Germany, Austria, Spain and Italy) will be reported in the final report. This will determine to what extent data protection concerns are justified bearing in mind current legal framework and consider whether any further measures or improved harmonisation are warranted.

³ <http://www.gpo.gov/fdsys/granule/CFR-2011-title49-vol6/CFR-2011-title49-vol6-part563/content-detail.html>

5 Questions for discussion

Cars

- What proportion of the European car fleet already has EDR technology fitted?
 - What is the cost of fitting the technology to the remaining vehicles?
 - Are there any technical or legal barriers to mandating fitment of EDRs?
- Should the fitment of EDRs be mandated? If not, how should deployment of effective EDR technologies be promoted?
- Should EDR and eCall technologies be integrated?
- If EDR fitment is mandated, what are the suitable Type Approval procedures to ensure that data is recorded in a collision and that the data have suitable accuracy?
- Does the EDR specification in 49 CFR Part 563⁴:
 - Provide sufficient harmonisation of EDRs?
 - Record all of the data that would be required for accident investigation?
 - Do manufacturers use this data?

Heavy Commercial Vehicles

- What proportion of the European heavy commercial vehicle fleet have EDRs or components of EDR technology fitted?
- What would be the most effective technological approach to implementing EDR capability in heavy commercial vehicles? For example, options may include: stand-alone EDR device; adding EDR capability to the digital tachograph; expanding the capability of the driver's airbag control module (and possibly mandating fitment of a driver's airbag in all heavy commercial vehicles).
 - What would be the cost of these options?
- How should deployment of effective EDR technologies be promoted?
- If EDR fitment is mandated, what are the suitable Type Approval procedures to ensure that data are recorded in a collision and that the data have suitable accuracy?

Light Commercial Vehicles

- What proportion of the European light commercial vehicle fleet have EDRs or components of EDR technology fitted?
- What proportion of the European light commercial vehicle fleet has driver's airbags? Could the airbag control module form the basis of an EDR?

⁴ <http://www.gpo.gov/fdsys/granule/CFR-2011-title49-vol6/CFR-2011-title49-vol6-part563/content-detail.html>

- What would be the most effective technological approach to implementing EDR capability in light commercial vehicles? For example, options may include: stand-alone EDR device; expanding the capability of the driver's airbag control module.
 - What would be the cost of these options?
- How should deployment of effective EDR technologies be promoted?
- Should EDR and eCall technologies be integrated?
- If EDR fitment is mandated, what are the suitable Type Approval procedures to ensure that data are recorded in a collision and that the data have suitable accuracy?

EDR data use and confidentiality

- Who owns the data recorded by the EDR?
- Who has access to the data recorded by the EDR?
- Under which circumstances will these data be accessible?
- What are acceptable uses of the data?
- What are the confidentiality concerns and how can they be addressed?
- What is the adequate/feasible legal framework to address these issues?
- Does the law in any European country conflict with the mandated fitment of EDRs or access to EDR data?

Benefits and costs

- What are the benefits of EDRs? How should these be monetised?
- What is the effect of an EDR (that does not include any continuous recording function) on driver behaviour?
- What are the costs of exploiting EDR data, e.g. analysing the data for liability or research purposes? Does the use of EDR data save costs overall compared to traditional accident reconstruction methods?

Implementation

- Which variables should be recorded and at what sampling rate?
- Is there any technical reason why the status/activation of all safety systems cannot be recorded?
- In the US, Part 563 requires that EDR data (from cars) must be available to users. Most car manufacturers have interpreted this to mean that a third-party tool should be available for purchase. However, the car manufacturer does not control the implementation of the third-party tool, including whether the interpretation and presentation of the EDR data by the third party is accurate. At least one manufacturer's interpretation of Part 563 means that downloaded EDR data have to be sent to the manufacturer, which will interpret the data and

provide a report. This adds a considerable overhead to the application of EDR data. What is an appropriate definition of the availability of EDR data?

- Is there a need to certify tools used to download data from an EDR, e.g. to ensure that the interpretation and presentation of the data is accurate and traceable? If so, what are the requirements for certification?
- Is there a need to improve triggering compared with current devices in order to record collisions with pedestrians and cyclists? If so, what are the cost implications of this?
- Should downloaded EDR data be explicitly linked to the vehicle concerned, e.g. to ensure the traceability of evidence?
- Is there a need to implement anti-tamper measures within EDRs, e.g. to prevent modification or deletion of the EDR data?
- Are there any training requirements for persons responsible for downloading and exploiting EDR data (e.g. police officers, road safety officials)? Should these roles be limited to certified persons only?
- Should there be a central European database of downloaded EDR data for road safety research? If so, what other information should be stored (e.g. injury severity, injury types, occupant age)? Should access to and use of such a database be controlled?