

DRAFT REPORT

1st meeting of the Informal Working Group (IWG) on Event Data Recorder (EDR) and Data Storage System for Automated Vehicle (DSSAD)

8-9 July 2019,
Brussels (EU Commission)

Chairmen:

The Netherlands:	Mr. Tim Guiting
Japan:	Mr. Tetsuya Niikuni

Secretariat:

OICA	Mr. Olivier Fontaine
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1. Welcome and Introduction

The Chair welcomed the participants to the meeting and thanked the EC for hosting the session.

2. Approval of the agenda

Document: EDR/DSSAD-01-01 (Chair)

3. Introduction

3.1. Procedural background

The Chair summarized the genesis of the informal group and the state of play with regard to the development of regulatory texts on EDR and DSSAD:

- The GRVA-ACSF informal group flagged the need for a Data Storage System for Automated Driving (DSSAD) from the beginning of their work in 2015
- The EC in mid-2018 produced a revision 2 of the General Safety Regulation (GSR) requesting Event Data Recorder for M1/N1 vehicles
- GRVA-02 (January 2019) established a preliminary allocation document per GRVA-02-44 showing some tentative timeline for DSSAD provisions dedicated to Advanced Lane Keeping System (ALKS). OICA tabled documents GRVA-02-20 (approach on DSSAD) and GRVA-02-21 (proposal for a draft regulation on DSSAD)
- WP29 at its March 2019 session (177th) agreed requested GRSG to start the work toward a Global Technical Regulation (GTR) on EDR.
- At GRSG-116 (April 2019), J and NL presented document GRSG-116-43 proposing draft terms of reference for a new informal group on EDR. This document was amended during the session and tentatively adopted per GRSG-116-43-Rev.1.
- During April, May and early June 2019, the interested contracting parties members of WP29 held several teleconference to start the process of producing draft terms of reference for the different informal groups under the responsibility of GRVA, per the document WP.29/2019/34 (framework document)
- At GRVA-03 (June session), the leadership of a joint GRSG/GRVA informal group on DSSAD and EDR was proposed to NL and J.
- At WP29-178 (June session) the document WP.29/2019/34 was supplemented by WP29-178-10-Rev.2, and the terms of reference of the joint GRSG/GRVA informal group on DSSAD and EDR were adopted per Annex VII of the official report (document WP.29/1147).

The Chair finally informed the group about the tasks assigned by WP29:

- Objectives of and differences between EDR and DSSAD to be tabled for GRVA-04 (September 2019) and GRSG-117 (October 2019) then to WP29-179 (November 2019)
- DSSAD requirements for Lane Keeping systems of SAE levels 3/4 as new UN Regulation for contracting parties to the 1958 Agreement to be delivered in synchronization with ALKS delivery, i.e. for GRVA-05 (February 2020) then WP29-180 (March 2020).
- EDR technical requirements for conventional and automated/autonomous vehicles for WP29-182 (November 2020).

3.2. Collection of first views from the parties

Document: EDR-DSSAD-01-04 (CLEPA-OICA)

D: as part of the ACSF informal group, the delegate was keen to contribute mainly for DSSAD. The expert emphasized the need to fulfil the task assigned to the group about the differences between EDR and DSSAD. Chair: 1st meeting will be mainly devoted to the identification of DSSAD vs. EDR. Yet the 1st task (most urgent) will be DSSAD for ALKS.

OICA presented EDR-DSSAD-04:

- EVU: there might be a need that data be collected per DSSAD also for assistance systems of L2 (AEBS sometimes inadequately intervenes).
- Chair: the mandate from the Framework document WP.29/2019/34 is for L3-4
- D:
 - o The request from ACSF is for L3-4. Enlargement of scope might be possible at a later stage
 - o Real need to deliver ALKS L3 by February 2020, hence DSSAD should be ready by that date.
- S: questioned the EDR triggering in case of e.g. system failure or “unplanned take-over”. Yet these events are captured by the EDR.

J presented EDR-DSSAD-05: the expert stressed that the timeline is quite tight, the group needs to find an efficient delivery system

- D:
 - o Suggested synchronizing meetings of EDR/DSSAD with those of ACSF
 - o Suggested that EDR/DSSAD requests ACSF to provide a “whish list” to this group so as to know exactly what to deliver.

4. Revision of the terms of reference

Document: GRVA-03-22 (GRVA Secretary)
WP.29/2019/1147 (WP29)

4.1. Identifying the IWG’s tasks and deadlines

The group reviewed the Annex VII from the WP29-178 draft report (CRP4, lately available as WP29/2019/1147)

The Chair pointed out that the dates were taken out from the draft terms of reference (GRVA-03-22), to be found back in the Framework document WP29-178-10-Rev.2.

The EC wondered how the group could deliver DSSAD full package without delivering EDR as well. The Chair confirmed the timeline as per WP29-178-10-Rev.2.

On the regulatory approach, the Chair suggested focusing on the technical requirements for DSSAD as a UN regulation linked to ALKS.

OICA informed having already started internally producing a draft for an EDR regulation. Yet the expert stressed the need to collaborate with the ACSF informal group for some particular aspects such as the definition of take-over demand, the GPS positioning data, access to data, etc.

D:

- Questioned whether OICA would table the document GRVA-02-21 (Draft DSSAD regulation) as an input to the informal group;
- Informed that the ACSF informal group has currently no view on the text formatting

OICA committed to share a text proposal for a draft regulation on EDR.

OICA informed having also an internal ongoing document on DSSAD. The OICA expert however stressed the need to get stable requests from the ACSF informal group.

There was a debate on DSSAD dedicated for ALKS vs. for systems beyond ALKS. Yet the Chair recalled that the mandate of the group for the time being is restricted to DSSAD for ALKS. DSSAD for a broader purpose/scope shall certainly be addressed but at a later stage.

Conclusion:

- OICA to deliver a DSSAD draft text for the next session,
- That document being a starting point for the group.

4.2. Priorities

The group convened to follow the recommendations of document WP29-178-10-Rev.2.

4.3. Identification of the scope of the regulatory proposals (vehicle categories, possible exemptions, etc.)

D informed that the scope of ASCF is currently decreased for time constraints to M1 at low speed. Yet the group will consider in the near future coming back to the original scope.

OICA clarified the dates of introduction of EDR within the EU GSR (2022-2024 for M1 category)

The EC suggested to win time and already now start elaborating EDR for HCVs. Yet OICA pointed out that the timeline for DSSAD for light vehicle is already quite challenging. EVU supported this OICA point of view, i.e. EDR triggering is already quite difficult to discriminate on light vehicles, hence even more difficult on HCVs.

S questioned whether there is any technical limitation for DSSAD on HCVs?

Conclusion:

- All contracting parties to check their wish for the scopes on EDR and DSSAD for the next meeting
- All also to check the necessary exemptions (e.g. for privacy reasons).

4.4. Identification of the specific objectives of EDR and DSSAD

Documents:

- EDR-DSSAD-01-02 (CLEPA-OICA)
- EDR-DSSAD-01-03 (CLEPA-OICA)
- EDR-DSSAD-01-06 (J)
- EDR-DSSAD-01-07 & Rev.1 (Secretary)

The group started elaborating a comparison table EDR-DSSAD-01-07 and rev.1

D: stressed the attention on cybersecurity

The Chair recalled that the result of this exercise should be given to WP29 at its November session

The group then reviewed the draft regulation on EDR (document EDR-DSSAD-01-03).

S: asked the reason for the different time and frequency of recording. Different parameters need different recording values.

Tesla requested clarity on the column related to “accuracy”: does it apply to the full range of collected data? It was clarified that the proposal is mainly a copy/paste of the US EDR.

FERV pointed out that as the proposal is unfortunately referring on an outdated version of CFR563, some parameters could be improved. The expert cited the Veronica project as a place where some guidance

could be found. The expert suggested establishing a roadmap of what should be improved in the future. OICA acknowledged this point of view but stressed that the time is limited to finalize the text. Some expert stressed that the text and table are developed on the basis of a 2008 US EDR, while it was reviewed in 2011.

The Chair stressed that it is up to the contracting parties to check at home whether the proposal is convenient.

TRL informed that their EDR data sample since more than 10 years have at least one axis acceleration value.

S requested the Veronica project report as part of the reference documents. The Secretariat committed to make it available to the group (now available as document EDR-DSSAD-01-10).

Korea

- Unit for “G”: the data should be recorded in m/s^2 in lieu of “g”.
- Other systems like TPMS: mandatory ADAS should be added to the list of EDR-DSSAD-01-02

OICA stressed that in the UNECE framework, a regulation can only refer to the UNECE regulated functions. The elaboration of a GTR may become a challenge in this regard. OICA acknowledged that TPMS is indeed a candidate but stressed that it is currently not proven as a safety function, since it was mandated mainly for emission purposes.

S questioned which data should be recorded in AVs.

The question was raised as to whether the EDR should be treated as a separate technical unit, or whether this should be treated as a vehicle regulation (EU GSR requires a separate technical unit treatment).

Some expert raised the question of PTI to ensure EDR is correctly functioning when there is an event.

OICA requested evidence of such a need: in the USA, how many accidents could not be reconstructed due to the EDR out of order?

TRL pointed out that some L2 ADAS may need more detailed criteria.

S stressed the need for a clear roadmap.

OICA pointed out that starting with a copy/paste of the existing EDRs would permit transitional provisions when the text evolves, which is of high relevancy for Industry. For example, some existing vehicle EDRs cannot be upgraded to some recent ADAS data collection due to lack of proper connexion.

Conclusion:

- More details at next session
- OICA to improve the document according to the comments received
- Then homework for all parties to have positions and comments to the revised draft. Comments to be sent to the Secretariat
- All to have a position as to whether the 1st step should be a copy/paste of the US EDR, or to be a further elaborated draft.

OICA then presented an updated version of the document GRVA-02-21.

The Chair recognized the need to correctly liaise with GRVA and ACSF

FSD:

- Time scan: capacity of the time scan to give a clear picture of the event: need to well define the accuracy
- Access to data: currently via OBD. Yet in the future it will be OTA then stored in some backhand. What is the role of the manufacturer there?
- Retrieval tool: need for harmonization to avoid 1000 of different tools.
- MSD (Minimum Set of Data, as required in the E-call regulations): in the EU there is a scantool mandatory as from 2023, with a standard in ISO: standardized access.

There was an exchange of view on the place of data storage, and who should have access to the data. A UN regulation can only regulate what is related to the vehicle itself. However, the access allowance, and the duration of accessibility has an influence on the design of the DSSAD. S wondered whether an external storage of data can be accepted.

The Secretary suggested to transfer the Article 4.5. to the ALKS draft regulation.

Regulatory approach:

- Separate regulation or
- Annex to the ALKS regulation.

D was of the opinion that this is up to GRVA to decide the regulatory approach. Yet the Framework document requires the informal group to develop a draft UN regulation.

Conclusion:

- Document EDR-DSSAD-01-02 to be reviewed at next meeting
- All to provide comments to the Secretary
- Secretary to transform the draft into a UNECE draft regulation.
- GRVA to decide whether the final text will be produced as an annex to the ALKS regulation or with another regulatory approach
- All contracting parties to have a position with regard the place of data storage, on-board or transmitted and stored at a backend. (*maybe also mention at item 5?*)

4.5. Identification of the differences between EDR and DSSAD

The group then reviewed the document EDR-DSSAD-01-07-Rev.1 (produced during the session)

- **“purpose”**: EVA challenged having different columns for conventional and automated vehicles since the lower levels of automation need the same data as the others. Some debate took place as well on the definition of “accident”.
- **“what it cannot do”**: wording changed into “what it shall not do”. Yet the group should not confuse the technical regulation and the use of the function. Problem of whether the row addresses the technical capabilities or a legal limit.
- **“PTI”**: FSD: longevity of the system and its accuracy should be ensured throughout the life of the vehicle. Yet a test method cannot be defined in this draft regulation. FSD was keen to ensure that the PTI bodies can have access to the information and have the access rights. S had some reluctance with PTI. OICA stressed that PTI anyway raises the “pandora box” of data privacy. FSD insisted that PTI should have access to the data. The Chair found access to data beyond the mandate of the group; OICA wondered about possible conflict between PTI provisions and the purpose of EDR as defined in the row above.
- **“vehicle storage capabilities”**: UK mentioned that some data could be stored out of the vehicle. D raised the question of the expected amount of memory; requested the manufacturers to provide an idea of the amount of data. OICA clarifies that it is a question of “system capability” and pointed out that “event” does not have same definition for EDR vs. DSSAD
- **“System crash survivability”**: OICA: the EDR regulation should be understood in the context of UN R94 (frontal impact). The Chair questioned a possible reference to the context of UN R144 (E-call). Yet OICA pointed out that UN R144 requires AECS capabilities even if the vehicle is fully destroyed (very aggressive impact); this is not valid for EDR and DSSAD. The Chair pointed out the UN R94 is dedicated to the protection of the occupants, not of the data. OICA also stressed that UN R94 provides the advantage of being a harmonised standard. The expert from OICA informed that the USA abandoned the approach of a FMVSS (Federal Motor Vehicle Safety Standard) because the Self Certification regime does not provide space for failure, i.e. it requests a guarantee that the data can be retrieved in all cases. TRL informed that in their experience there is barely any case where data cannot be retrieved. For DSSAD, OICA clarified that crash survivability depends on the storage place of the data.
- **“event definition”**: there was a debate on the limit to be given to the definition since it could limit the range of the regulation. The EC informed that the GSR refers to a “collision”, hence the trigger threshold should be related to a collision. The Chair suggested inspiring from UN R144 since the triggering in absence of any crash is addressed somehow.
- **“Battery restitution”**: in case of a severe crash, the battery connection might be destroyed, yet the EDR should have energy enough to store data. OICA informed that in current production the EDR is usually situated into the restrain system ECU, which contains energy enough to command the deployment of several airbags. For DSSAD, there should be no relevant data to be included after a “big event”. In addition, ALKS is for the moment limited to low speed.
- **“Environmental robustness (vibrations, etc.)”**: Korea recalled their need for provisions. Concerning EDR, the system is enclosed into the restrain system ECU hence is somewhat

protected. For DSSAD, it should collect and store data for a long period hence must of course withstand the same constraints as the vehicle itself.

- “**Malfunction detection**”: should there be a failure in the DSSAD, and the DSSAD being mandatory for ALKS, then there should be of course a warning and a MRM. Criteria depend on ALKS.

Conclusion:

- FSD to provide a wording for PTI

5. List of action items

- Informal group to deliver a comparison document to GRVA-04 and GRSG-117, for tabling at WP29-179 of November 2019
 - o All to review the document EDR-DSSAD-01-07-Rev.1
 - o Table to be finalized for EDR-DSSAD-02 (18-20 September 2019)
 - o All contracting parties to have a position with regard the place of data storage, on-board or transmitted and stored at a backend.
- EDR
 - o OICA to improve the document according to the comments received at EDR-DSSAD-01
 - o Then homework for all parties to have positions and comments to the revised draft. Comments to be sent to the Secretariat
 - o All contracting parties to check for the next meeting
 - their wish for the scopes on EDR and DSSAD
 - the necessary exemptions (e.g. for privacy reasons)
 - o All to have a position as to whether the 1st step should be a copy/paste of the US EDR, or to be a further elaborated draft.
- DSSAD
 - o OICA to deliver a DSSAD revised draft text for the next session,
 - o All to provide comments to the Secretary based on the existing documents
 - o Secretary to transform the draft into a format convenient for a draft UNECE regulation.
 - o That document being a starting point for the group.
 - o GRVA to decide whether the final text will be produced as an annex to the ALKS regulation or in another format

6. Dates and venues of next meetings

Meeting	Dates	Venue	Note
ACSF-23	30 July – 1 August 2019	Brussels (EC)	For information: input expected about the requests from ACSF to EDR- DSSAD
EDR-DSSAD-02-Prepa	5 September 2019	Webex	Timing to be precised
EDR-DSSAD-02	From 18 September 1:30 pm to 20 September 12:30 am	Palais des Nations	Room IX Conflict with WP1- 79
GRVA-04	24-27 September 2019	Palais des Nations	
GRSG-117	8-11 October 2019	Palais des Nations	
EDR-DSSAD-03	10-12 December 2019	OICA	Venue to be confirmed