

## **Proposal for amendments to UN Regulation No. 157**

The text reproduced below was prepared as a follow up of the decision of the DSSAD-EDR group at its 16<sup>th</sup> meeting to refer back SG-DSSAD-06-02 to the SIG-157 informal group in order to include this amendment into UN Regulation No. 157 instead of UN Regulation No. 160. This document was discussed by the Special Interest Group on UN Regulation No. 157 (SIG-157) at its 12<sup>th</sup> session and is now submitted to GRVA for consideration.

### **I. Proposal**

*Insert new paragraph 8.4.4., to read:*

#### **8. Data Storage System for Automated Systems**

- 8.1. Each vehicle equipped with ALKS (the system) shall be fitted with a DSSAD that meets the requirements specified below. The fulfilment of the provisions of paragraph 8 shall be demonstrated by the manufacturer to the technical service during the inspection of the safety approach as part of the assessment to Annex 4.

This Regulation is without prejudice to national and regional laws governing access to data, privacy and data protection.

- 8.2. Recorded occurrences

- 8.2.1. Each vehicle equipped with a DSSAD shall at least record an entry for each of the following occurrences upon activation of the system:

- (a) Activation of the system
- (b) Deactivation of the system, due to:
  - (i) Use of dedicated means for the driver to deactivate the system;
  - (ii) Override on steering control;
  - (iii) Override by accelerator control while holding steering control;
  - (iv) Override by braking control while holding steering control.
- (c) Transition Demand by the system, due to:
  - (i) Planned event;
  - (ii) Unplanned event;
  - (iii) Driver unavailability (as per para. 6.1.3);
  - (iv) Driver not present or unbuckled (as per para. 6.1.2.);
  - (v) System failure;
  - (vi) System override by braking input;
  - (vii) System override by accelerator input.
- (d) Reduction or suppression of driver input;
- (e) Start of Emergency Manoeuvre;
- (f) End of Emergency Manoeuvre;
- (g) Event Data Recorder (EDR) trigger input;
- (h) Involved in a detected collision;

- (i) Minimum Risk Manoeuvre engagement by the system;
  - (j) Severe ALKS failure;
  - (k) Severe vehicle failure.
- 8.3. Data elements
- 8.3.1. For each occurrence listed in paragraph 8.2., the DSSAD shall at least record the following data elements in a clearly identifiable way:
- (a) The occurrence flag, as listed in paragraph 8.2.;
  - (b) Reason for the occurrence, as appropriate, and listed in paragraph 8.2.;
  - (c) Date (Resolution: yyyy/mm/dd);
  - (d) Timestamp:
    - (i) Resolution: hh/mm/ss timezone e.g. 12:59:59 UTC;
    - (ii) Accuracy: +/- 1.0 s.
- 8.3.2. For each occurrence listed in paragraph 8.2., the R<sub>15X</sub>SWIN for ALKS, or the software versions relevant to ALKS, indicating the software that was present at the time when the event occurred, shall be clearly identifiable.
- 8.3.3. A single timestamp may be allowed for multiple elements recorded simultaneously within the timing resolution of the specific data elements. If more than one element is recorded with the same timestamp, the information from the individual elements shall indicate the chronological order.
- 8.4. Data availability
- 8.4.1. DSSAD data shall be available subject to requirements of national and regional law.<sup>1</sup>
- 8.4.2. Once the storage limits of the DSSAD are achieved, existing data shall only be overwritten following a first in first out procedure with the principle of respecting the relevant requirements for data availability.
- Documented evidence regarding the storage capacity shall be provided by the vehicle manufacturer.
- 8.4.3. Retrievability of data
- 8.4.3.1. For vehicles of Category M<sub>1</sub> and N<sub>1</sub>, the data elements listed in paragraph 8.3.1. shall be retrievable even after an impact of a severity level set by UN Regulations Nos. 94, 95 or 137, as applicable.
- 8.4.3.2. For vehicles of Categories M<sub>2</sub>, M<sub>3</sub>, N<sub>2</sub> and N<sub>3</sub>, the data elements listed in paragraph 8.3.1 shall be retrievable even after an impact. To demonstrate that capability, the following applies:
- Either:
- (a) After a mechanical shock applicable to on-board data storage devices, if any, at a severity level as specified in the component test of Annex 9C of the 03 series of amendment to UN Regulation No. 100, and
  - (b) On-board data storage device(s) shall be mounted in the vehicle cab/passenger compartment or in a position of sufficient structural integrity to protect against physical damage that would prevent the retrieval of data. This shall be demonstrated to the technical service together with appropriate documentation (e.g. calculations or simulations); or

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<sup>1</sup> Note: based on a recent quantitative study of a Contracting Party, GRVA is considering that the text specifies several timestamps specifications of 2500 timestamps to correspond with a period of 6 months of use.

- (c) The manufacturer demonstrates fulfilling the requirements of paragraph 8.4.3.1. (e.g. for M<sub>2</sub> / N<sub>2</sub> vehicles derived from M<sub>1</sub> / N<sub>1</sub>).
- 8.4.3.3. If the main on-board vehicle power supply is not available, it shall still be possible to retrieve all data recorded on the DSSAD, as required by national and regional law."
- 8.4.4. Data stored in the DSSAD shall be easily readable in a standardized way via the use of an electronic communication interface, at least through the standard interface (OBD port).
- 8.4.5. Retrieval in conjunction with EDR data**
- 8.4.5.1. For vehicles fitted with an EDR in accordance with UN Regulation 160, it shall be possible to retrieve through the standard interface (OBD port) the DSSAD data elements as referred to in paragraphs 8.3.1(a) and 8.3.1(b) recorded for at least the last 30 seconds before the last setting of the occurrence flag "Event Data Recorder (EDR) trigger input", alongside the data elements specified in UN Regulation 160, Annex 4 (EDR data).**
- 8.4.5.2. In the absence of any occurrence referred to in paragraph 8.2.1. within the last 30 seconds before the setting of the occurrence flag "Event Data Recorder (EDR) trigger input", it shall be possible to retrieve, alongside the EDR data, the data element corresponding to the last occurrences referred to in paragraphs 8.2.1.(a) and (b), as a minimum.**
- 8.4.5.3. If required by national or regional law, the data elements retrieved in accordance with paragraph 8.4.5.1. or 8.4.5.2. shall not include the date (as referred to in paragraph 8.3.1.(c)) and the timestamp (as referred to in paragraph 8.3.1.(d)) or any other information allowing for identification of the vehicle, its user or owner. Instead the time stamp shall be replaced with information representing the time difference between the occurrence flag "Event Data Recorder (EDR) trigger input" and the occurrence flag of the respective DSSAD data element.**
- 8.4.6. Instructions from the manufacturer shall be provided on how to access the data.
- 8.5. Protection against manipulation.
- 8.5.1. It shall be ensured that there is adequate protection against manipulation (e.g. data erasure) of stored data such as anti-tampering design.
- 8.6. Availability of DSSAD operation
- 8.6.1. DSSAD shall be able to communicate with the system to inform that the DSSAD is operational.

## II. Justification

The purpose of the document is to clarify that it shall be possible to retrieve the DSSAD data of the ALKS together with the data of the EDR. These DSSAD data shall include the last 30 second before the EDR trigger and shall not include the actual date/time.