

**Proposal for amendments to informal document “Data Storage System for Automated Driving” (EDR-DSSAD-02-02 (CLEPA-OICA))**

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The text reproduced below aims at proposing improvements to the text Draft new UN Regulation on uniform provisions concerning the approval of motor vehicles with regard to their DSSAD. The modifications to the existing text of the proposed Draft Regulation (EDR-DSSAD-02-02 (CLEPA-OICA)) are marked in bold for new text and strikethrough for deleted text.

# I.Proposal

*Paragraph 1.,amend to read:*

“1. Introduction

This regulation specifies requirements for vehicles equipped with Data Storage Systems for Automated Driving (DSSADs) concerning the collection, storage, and retrievability of motor vehicles fitted with an Automated Driving System (ADS) and a driver who is able to engage and disengage this system.

It also specifies requirements for vehicle manufacturers to provide **an information package to authorised parties which includes information how to grant access by using a generic scan-tools** (~~if needed~~) and/~~or~~ methods **that enable data transmission and external storage on an independent backend** so that authorized parties (defined on a national basis by national legislation) are able to collect data from DSSADs.

The purpose is to ensure that DSSADs collect and store, in a readily usable manner, data valuable for effective investigations and analysis, when duly justified, and make it possible:

- to provide a clear picture of the significant interactions (i.e. activation/deactivation of the system, Minimum Risk Manoeuvre or Emergency manoeuvre by the system, and transition scenario) between the driver and the ADS), and
- to determine in an objective manner who, from the driver or the ADS, “was requested to be in control of the driving task”, and who from the driver or the ADS “was actually performing the driving task”, at a certain moment in time.

*Paragraph 3.1.,amend to read:*

- 3.1. “Data Storage System for Automated Driving (DSSAD)” means a system which aims at giving a clear picture of the significant interactions between the driver and the ADS by storing a set of data **to determine who or what controlling the vehicle at a given time or whether the driver was requested to take over the control of the vehicle driving.**

*Paragraph 3.4.,amend to read:*

- 3.4. “Data” means a series of **position and** timestamped information entries related to a logic signal indicating that the ADS was switched ON or OFF, or a specific significant interaction between the driver and the system occurred at a precise time.

*Insert new paragraph 3.17., to read:*

**3.17. Authorized parties are individuals, legal entities and authorities, which have been granted access rights, as defined in national or regional legislation, to access and receive data from the DSSAD.<sup>1</sup>**

*Insert new paragraph, 3.18., to read:*

**3.18. Generic scan-tool means a vehicle- and manufacturer independent external test equipment used for standardised off-board communication with the vehicle.**

*Insert new paragraph 3.19., to read:*

**3.19. Independent backend is a backend server that is sovereign to the manufacturer, supplier, infrastructure operator, vehicle owner and prosecution authorities and is managed by an authority or organisation defined by national legislation. It stores and maintains the data elements transmitted by the DSSAD in accordance with national or regional legislation and makes the data available to authorized parties.**

*Insert new paragraph 3.20. to read:*

**3.20. Data transmission is the process of sending data over a communication medium directly from the vehicle to the independent backend.**

*Insert new paragraph 3.21., to read:*

**3.21. Data set is a data matrix containing all contiguous data elements listed in paragraph 6.2. that were triggered from the time the HAD system was activated until it was deactivated.**

*Insert new paragraph 3.22., to read:*

**3.22. Over the air (OTA) interface means an interface that can establish a wireless connection with the independent backend and allow data transfer thereto wirelessly instead of using a cable or other local connection.**

*Paragraph 6.1., delete:*

~~6.1. Data shall be available by using a dedicated retrieval tool~~

*Paragraph 6.2., amend to read:*

6.2. Data elements

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<sup>1</sup> The national legal regulations must be applied for the corresponding requirements and the scope of the respective access rights.

Each vehicle equipped with a DSSAD shall store all of the data elements listed below, so that their order of occurrence can be determined :

a) **Position and Time stamped switches of the ADS from a status to another status**

- \* Activation
- \* Manual deactivation
- \* Automatic deactivation

*(Note : list to be continued if needed, for consistency with ALKS regulation)*

b) **Position and Time stamped Transition Demand by the ADS, so that the nature of its cause can be determined from being either :**

- Driver not available
- Driver override
- System failure
- Planned event, or
- Unplanned event

c) **Position and Time stamped Minimal Risk Maneuver engagement by the ADS**

*(Note : Definitions of the “start” of MRM will be given by ALKS regulation)*

d) **Position and Time stamped override through steering control by the driver**

e) **Position and Time stamped override through brake control by the driver**

f) **Position and Time stamped override through accelerator control by the driver**

*(Note : Definition of these Overrides are given by ALKS regulation, chapter 2.4.8)*

**g) Position and Time stamped C-ITS signals received while ADS is activated.**

*Paragraph 6.3., amend to read:*

6.3. Data format

Each data element listed in Paragraph 6.2 shall be recognized without any possible confusion by ~~the a standardised~~ codification. ~~that will be chosen by the manufacturer.~~

6.3.1. Each time stamp attached to this data shall enable to determine when the significant interaction (change of ADS status, Transition Demand

release, Minimum Risk Maneuver or Emergency Manoeuvre or Override by the driver) occurred with a resolution of [1 second] in GMT time.

**6.3.2. Position determination**

**6.3.2.1. Horizontal position error shall not exceed:**

- (a) **Under open sky conditions: 15 m at a confidence level of 0.95 probability with Position Dilution of Precision (PDOP) in the range from 2.0 to 2.5;**
- (b) **In urban canyon conditions: 40 m at a confidence level of 0.95 probability with PDOP in the range from 3.5 to 4.**

**6.3.2.2. Sensitivity at receiver input shall be:**

- (a) **GNSS signals detection (cold start) do not exceed 3,600 s at the signal level on the antenna input of the AECC of minus 144 dBm;**
- (b) **GNSS signals tracking and navigation solution calculation is available for at least 600 s at the signal level on the antenna input of the AECC of minus 155 dBm;**
- (c) **Re-acquisition of GNSS signals and calculation of the navigation solution is possible and does not exceed 60 s at the signal level on the antenna input of the AECC of minus 150 dBm.**

**6.3.2.3. Cold start time to first fix shall not exceed**

- (a) **60 s for a signal level down to minus 130 dBm;**
- (b) **300 s for a signal level down to minus 140 dBm.**

**6.3.2.4. GNSS signal re-acquisition time after a block out of 60 s at a signal level down to minus 130 dBm shall not exceed 20 s at the recovery time of the navigation satellite visibility.**

**6.3.2.5. The GNSS receiver shall be able to obtain a position fix at least for every second.**

**6.3.2.6. Accuracy shall be provided for the complete speed range of the automated driving function.**

*Paragraph 6.4., amend to read:*

**6.4. Data storage**

**6.4.2.1. DSSAD shall be able to store a minimum of [X.000] position and timestamped significant interactions or cover a minimum period of [X] months of use, whichever is achieved first.**

Once these storage limits of the DSSAD are achieved, additional data storage may erase the previous data, following the “First In / First Out” rule, ~~and data over these limits may be impossible to retrieve.~~

**6.4.2.2. Notwithstanding paragraph 6.4.2.1. data shall be retrievable by the methodology described in paragraph 6.5.1. within the national or**

regional legislative storage periods. After these storage periods, data shall be impossible to retrieve.

- 6.4.2.3. The DSSAD shall be fitted with an embedded hardware, allowing authentication on, and access to the over the air (OTA) interface.
- 6.4.2.4. The DSSAD shall be able to recognize, when a data transmission to the independent backend is successfully completed.
- 6.4.2.5. After the end of a position and timestamped event, the DSSAD shall send the data set to the independent backend over a end-to-end protected wireless connection.
- 6.4.2.6. If the sending of data failed or is not possible, then the DSSAD shall retry sending the data, if a secure and active wireless connection is available.
- 6.4.2.6. Notwithstanding paragraph 6.4.2.1, stored data in the DSSAD shall be deleted after the DSSAD has registered a successful data transmission to the independent backend.

*Paragraph 6.5., amend to read:*

- 6.5. Data retrievability
  - 6.5.1. If the main onboard vehicle power supply is not available, it shall be possible to retrieve stored **position and** timestamped data from the DSSAD with ~~the appropriate~~ **a generic scan-tool via the electronic vehicle interface.** ~~or method provided by the manufacturer.~~
  - 6.5.2. After a UN Regulation No. 94 (Frontal collision) impact test, it shall be possible to retrieve **position and** timestamped data stored prior to the impact, from the DSSAD, with ~~the appropriate~~ **a generic scan-tool via the electronic vehicle interface.** ~~or method provided by the manufacturer.~~
  - 6.5.3. For authorized parties the data set shall be available via the electronic vehicle interface by using a generic scan tool or through an independent backend.
  - 6.5.4. For the purpose of type approval it shall be possible for Type Approval Authorities and Technical Services to access and read data via an electronic vehicle interface.
  - 6.5.5. At roadworthiness testing, including the periodic technical inspection, it shall be possible for responsible authorities to access and read at least the most recent data set via an electronic vehicle interface to test the storage functionality and the plausibility of the data set.
  - 6.5.6. The manufacturer shall provide an information package to authorized parties which includes the information how to grant access and retrieve the data stored in the DSSAD required by this regulation.”

*Insert new paragraphs 6.6.1. to 6.6.1.4., to read:*

- 6.6. Information to the driver
- 6.6.1.** The manufacturer shall provide in the vehicle owner's handbook, or by any other communication means in the vehicle, the necessary information about DSSAD, **which shall contain at least the following information:**
  - 6.6.1.1.** A statement that the vehicle is equipped with a DSSAD and information about the purpose of the DSSAD.
  - 6.6.1.2.** Information that manual deactivation of the DSSAD is not possible and that permanent tracking of the vehicle does not take place.
  - 6.6.1.3.** Information about the data elements, described in paragraph 6.2., the data storage and the data retrieval.
  - 6.6.1.4.** Additional information about data storage and rules on privacy and data protection, according to national or regional legislation.

*Insert new paragraphs 6.7. to 6.7.2., to read:*

- “6.7. System Deactivation and tracking**
- 6.7.1. It shall not be possible to deactivate the Data Storage System for Automated Driving.**
- 6.7.2. The DSSAD shall not be subject to any permanent tracking.”**

*Insert new paragraph 6.8., to read:*

- 6.8. Test procedure**
  - Is still to be defined -**

#### **Annex 4**

Data retrieval ~~tools~~

1. ~~Whenever a dedicated tool is necessary to retrieve the data, the manufacturer shall ensure by licensing agreement or other means that~~ **provide an information package to authorized parties which includes the information** ~~tool(s) is available that is capable of accessing and retrieving~~ **how to grant access and retrieve** the data stored in the DSSAD and that are required by this regulation.
2. The ~~tool(s)~~ **information** shall be available [when the approval according to this regulation is granted / not later than 90 days after the first sale of the motor vehicle for purposes other than resale].