Proposal for amendments to Draft Regulation of uniform provisions concerning the approval of "Event Data Recorder" (EDR-DSSAD-01-03)

Submitted by ALLIANZ, DEKRA, EVU, FSD, TH INGOLSTADT, VdTÜV

The text is based on the US regulation on data storage CFR Title 49 Part 563 from 2008. These rules have become obsolete since the US government adapted the regulations to the state of the art in 2011. ALLIANZ, DEKRA, EVU, FSD, TH INGOLSTADT and VdTÜV therefore demand that the current regulations of the US regulation be incorporated into the draft regulation.

Due to the fact that the EDR regulations must be adopted by 2022, it is understandable that part of the regulation is based on the existing US regulations. The further development of the regulations, also taking into account the special requirements of automated driving functions, is to be continued afterwards.

However, it is harmful for the improved accident analysis aimed at with the introduction of an EDR if specifications are drawn up here that are already outdated.

Based on the assumption that the regulations from the current CFR Title 49 Part 563 regulation will be adopted here as required, the text reproduced below is aimed at proposing improvements to the text of Draft Regulation of uniform provisions concerning the approval of "Event Data Recorder" (EDR-DSSAD-01-03) are marked in bold for new text and strikethrough for deleted text.

I.Proposal

"1.1. ~~Approval of vehicles of category [M1 ≤ 3,5 t and N1 ≤ 2,5 t]~~ **This Regulation applies to the approval of vehicles of category M and N[1]** with regard to their Event Data Recorder (EDR).

~~[~~1.2. At the request of the manufacturer, Contracting Parties may grant approvals to vehicles of other categories with regard to their Event Data Recorder (EDR)~~]~~."

"2.4 **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 EDR. [2]**"

"2.13 Event means a crash or other physical occurrence that causes the trigger threshold to be met or exceeded, ~~or an air bag to be deployed,~~ **or any non-reversible deployable restraint to be deployed, or a signal input of a sensor for detecting crash-impulses against the vehicle** whichever occurs first. **An event may also be the input of a signal that the driver generates to store EDR data manually on demand.**"

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

"2.18 **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 EDR in accordance with national or regional legislation and makes the data available to authorized parties.**

---

[1] As defined in Section 2 of the Consolidated Resolution on the Construction of Vehicles (R.E.3) (document ECE/TRANS/WP.29/78/Rev.6) – www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html.
[2] The national legal regulations must be applied for the corresponding requirements and the scope of the respective access rights.

"2.24   Non-volatile memory means the memory reserved for maintaining recorded EDR data in a semi-permanent fashion. Data recorded in non-volatile memory is retained after a loss of power and can be retrieved with ~~EDR data extraction tools and methods~~ **a generic scan tool via the electronic vehicle interface**.

Insert new paragraph 2.32, to read:

"2.32   Sensor for detecting crash-impulses against the vehicle means a device which is mandatory for vehicles that are - due to mass-differences - not able to detect collisions with vulnerable road users automatically by changes in acceleration or delta-V."

Paragraph 2.48., amend to read:

"2.48   Trigger threshold means a change in vehicle velocity, in the longitudinal direction, that equals or exceeds 8 km/h within a 150 ms interval.

For vehicles that record "delta-V, lateral," trigger threshold means a change in vehicle velocity in either the longitudinal or lateral direction that equals or exceeds 8 km/h within a 150 ms interval, **or a change in longitudinal or lateral acceleration, which is able to determine an impact to the vehicle.**

Insert new paragraph 2.54, to read:

"2.54   Pedestrian Impact Event is a physical occurrence that causes a Pedestrian Impact trigger threshold to be met or exceeded or any non-reversible deployable protection device to be deployed, whichever occurs first. For the purposes of recording event data, only one Pedestrian Impact event can be in progress at any given time."

Insert new paragraph 2.55, to read:

2.55   Rollover Event is a physical occurrence in which the occupant protection control algorithm initiates deployment of a rollover occupant protection system. For purposes of recording event data, only one Rollover Event can be in progress at a given time.

Insert new paragraph 2.56. to read:

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

Insert new paragraph 2.57., to read:

2.57. **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.**

Paragraphs 5.2.1. to 5.2.2., amend to read:

"5.2.1   In a frontal or side air bag deployment crash: capture and record the current deployment data, up to **three** ~~two~~ events. The memory for each air bag deployment event shall be locked to prevent any future overwriting of these data.

5.2.2   In a deployment event that involves another type of deployable restraint (e.g., pretensioners, knee bolsters, pedestrian protection, etc.), or in a non-deployment event **(e.g. pedestrian impact event, rollover event**) that meets the trigger threshold, capture and record the current non-deployment data, up to **three** ~~two~~ events, subject to the following conditions:"

5.2.3. **If no event described under 5.2.1. or 5.2.2 is recorded or buffered, it shall be possible to trigger the data capture manually.**

5.2.3.1. **EDR memory buffers containing previous deployment-event data, shall not be overwritten neither by the current manual triggering event data nor by a non-deployment event.**

5.2.4. **Notwithstanding paragraph 5.2.3, any stop of the vehicle shall trigger a storage of data elements identical to a non-deployment event.**

5.2.4.1. **These data elements shall be deleted automatically, if the vehicle was moved over a distance exceeding 300 meters and no manual storage according to paragraph 5.2.3 was triggered.**

Paragraph 5.3, amend to read:

"5.3   **Data storage and** survivability

5.3.1. **The EDR shall store the captured data in the vehicle.**

5.3.1.1.   The **stored** ~~recorded~~ data shall be retrievable by **a generic scan tool via the electronic vehicle interface** ~~the methodology specified by the vehicle manufacturer~~ for not less than 10 days after a data capture event as defined in paragraphs 5.**2**.

5.3.2. **When a vehicle is equipped with an over the air (OTA) interface, the following shall apply as appropriate:**

5.3.2.1. **The EDR shall be fitted with an embedded hardware, allowing authentication on, and access to an over the air (OTA) interface.**

5.3.2.2. **The system must be able to recognize, when a data transmission to the independent backend is successfully completed.**

5.3.2.3. After the end of an event, described in paragraph 5.2. the EDR shall send dataset of the respective event to the independent server over a end-to-end protected wireless connection.

5.3.2.4. If the sending of data failed or is not possible, then the EDR shall retry sending the data, if a secure and active wireless connection is available:

5.3.3. Notwithstanding paragraph 5.3.1.1. stored data in the EDR shall be deleted after the EDR has registered a successful data transmission to the independent backend.

Paragraph 5.4, amend to read:

5.4 Information

~~For vehicles fitted with EDR the owner's manual shall include information that the vehicle is fitted with an EDR. On publication means (e.g. owner's manual, maintenance manual, official web site) information about data retrieval shall be made accessible.~~

5.4.1. The owner's manual in each vehicle covered under this regulation must provide an appropriate statement which shall contain at least the following information:

5.4.1.1. A statement that the vehicle is equipped with an EDR and information about the purpose of the EDR.

5.4.1.2. The possibility that and how the EDR can be manually triggered in a distance-oriented memory range.

5.4.1.3. Information that manual deactivation of the EDR is not possible and that permanent tracking of the vehicle does not take place.

5.4.1.4. Information about the data elements, described in paragraph 5.1., the data capture, storage and survivability as well as the data retrieval.

5.4.1.5. Additional information about data storage and rules on privacy and data protection, according to national or regional legislation.

5.4.2. The information shall be easy to find in the owner's manual (e.g. by a specific reference to the information printed on the first page, identifying page tab or separate booklet, etc.).

Paragraph 5.5., amend to read:

5.5. Data retrieval ~~tools~~

5.5.1. Authorized parties shall be able to retrieve stored data with a generic scan-tool via the electronic vehicle interface from the EDR or through an independent backend (if provided).

5.5.2. 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.

5.5.3. **At roadworthiness testing, including the periodic technical inspection, it shall be possible for responsible authorities to access and read a manually triggered test data set via an electronic vehicle interface to test the storage functionality and plausibility of the data set.**

5.5.4. Each manufacturer of a motor vehicle equipped with an EDR ~~shall ensure by licensing agreement or other means that a tool(s) is available that is capable of accessing and retrieving~~ **shall provide an information package to authorized parties which includes the information how to grand access and retrieve** the data stored in the EDR**,** ~~that are~~ **as** required by this regulation. The **information** ~~tool(s)~~ shall be available not later than when the Type Approval is granted.

Paragraphs 5.6., amend to read:

"5.6. System **activation,** deactivation **and tracking**

5.6.1. It shall not be possible to deactivate the event data recorder ~~by the driver.~~

5.6.2. **It shall be possible to manually activate the EDR within a distance-oriented memory range, defined in Table "EDR-DSSAD-01-02 (EVU_20190904)".**

5.6.2. **The EDR shall not be subject to any constant tracking."**

Insert new paragraph 5.7., to read:

"5.7. **EDR malfunction detection**

5.7.1. **The vehicle shall be equipped with a tell-tale that provides a warning to the driver of the occurrence of any malfunction affecting the storage of data elements, the sensing of a trigger or the generation or transmission of control or response signals in the EDR.**

5.7.2. **The EDR malfunction tell-tale shall be identified by the symbol shown for "EDR Malfunction Tell-tale" below or the text "EDR":**

5.7.2.1. **It may be cancelled temporarily, but shall be repeated whenever the ignition or the vehicle master control switch is activated (whatever applicable)."**

Insert new paragraph 5.8., to read:

5.8. **Test procedure**

- Is still to be defined -