

Comparison between Event Data Recorder (EDR) and Data Storage System for Automated Driving (DSSAD)

This document aims at providing a comparison between Event Data Recorder (EDR) and Data Storage System for Automated Driving (DSSAD), as a first outcome of the joint GRVA/GRSG informal group on EDR/DSSAD, per the request of WP.29 at their 178th session (June 2019), the revised Framework Document ECE/TRANS/WP.29/2019/34/Rev.1 and the informal group terms of reference as reflected in the official report of that WP.29 session (Annex VII).

This document was reviewed, completed and corrected by GRVA at their 4th session (24-27 September 2019) and GRSG at their 117th session (8-11 October 2019).

GRVA and GRSG both provided guidance to the IWG regarding the scope (categories of vehicle) of the future regulatory texts. The square brackets ([]) in the table mean that some values and provisions need further work within the IWG.

EDR-DSSAD: Comparison table

<i>Items</i>		<i>EDR for conventional vehicles</i>	<i>EDR for ADs</i>	<i>DSSAD (L3-L4)</i>
Scope (categories of vehicles in the text)		Step1: Passenger cars and light duty vehicles (Vehicle categories according to R.E.3: M1, N1) Step 2: Heavy duty vehicles (Vehicle categories according to R.E.3: M2,M3,N2, N3)		Step1: Passenger cars and light duty vehicles of automation level 3 or 4 with ALKS Step 2: Heavy duty vehicles
System	Purpose (why do the contracting parties want to introduce this function into the vehicle?)	Accident analysis		Research, monitoring, liability, legal responsibility
	What the system should <u>not</u> do	<ul style="list-style-type: none"> - Detecting who is driving - Identifying the owner/holder of the vehicle on the basis of the stored data. - [Allowing for the tracking of the owner/the user/the holder of the vehicle] - Providing information about the surroundings of the vehicle 		<ul style="list-style-type: none"> - Providing data that are already available in the EDR - Identifying the user/owner/holder of the vehicle - [Allowing for the tracking of the owner/the user/the holder of the vehicle]
	Recording period	[X s] before event / [X ms] after event	May be longer for AD system than for conventional vehicles	As long as ALKS is engaged/stand-by.

<i>Items</i>		<i>EDR for conventional vehicles</i>	<i>EDR for ADs</i>	<i>DSSAD (L3-L4)</i>
	System storage capabilities	At least [1 to 3] events		<ul style="list-style-type: none"> - Several months (relevant figure TBD) anticipated, or - several thousands of interactions anticipated, whichever is achieved first.
	Capability to record data during a crash event	Resistance to high deceleration and mechanical stress of a severe impact		TBD
	Data survivability after a crash event	Resistance to high deceleration and mechanical stress of a severe impact		
	Trigger to initiate the data storage	“Event” (e.g. crash): physical occurrence that causes the trigger threshold to be met		“Interaction”: <ul style="list-style-type: none"> - change in the system operation status, or - demand for a change in the system operation status
	Battery restitution	All data mandatory per the table of EDR parameters must be stored after an event.		Final requirement to be aligned on demand from ACSF informal group
	Environmental robustness (vibrations, etc.)	Out of scope: the vehicle is crashed when data are stored, and not subject to any specific vibrations or other environmental aggression		Requirements fully linked to those of DSSAD
	Malfunction detection	NA* *EDR malfunction is not detrimental to occupant safety		Requirements fully linked to those of ALKS. DSSAD will self-diagnose via ALKS
	PTI	TBD		TBD
Data technique				
	Where to store (in the vehicle vs. the cloud)	Technology neutral provisions; the request is that “data are available and retrievable”		
	Data format	The final authorized user (will be defined by national legislation) must get the data in a comprehensive format, without any risk of corruption.		
	Data element	TBD		TBD
	Storing duration	Not less than 10 days after EDR is triggered		Several months if EDR is not triggered (to be determined according to storage capacity) Not less than 10 days after EDR is triggered (same as EDR)
Retrieval means	Technical regulation is technology neutral			
	Accuracy	According to the table of EDR parameters		<ul style="list-style-type: none"> - Accuracy relevant for the purpose (research, monitoring, reliability, legal responsibility) - The “data elements” must be stored in the order of occurrence.
	Access means	Technical regulation is technology neutral		
	Erasing means	FIFO type, when the memory is full, by overwriting		

<i>Items</i>	<i>EDR for conventional vehicles</i>	<i>EDR for ADs</i>	<i>DSSAD (L3-L4)</i>
Sampling rate	About 100 Hz, depending on the parameter		NA
Data identification (this data really belongs to that vehicle)	<ul style="list-style-type: none"> - VIN incorporated in data set if data are stored outboard - VIN optional in data set if data are stored inboard 		
Triggering parameter	Examples: high deceleration, airbag inflation, AEBS activation, ESF activation, etc.	Significant interactions between the ALKS and the human driver, when ALKS is engaged or in standby mode, and significant system changes or malfunctions.	