Submitted by FIA

Differences between EDR & DSSAD

Key: CLEPA-OICA inputs are indicated green

FIA Input

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
System				
	Purpose (why do the contracting parties want to introduce this function into the vehicle?)	• Accident reconstruction through: - Assessment of the dynamic behaviour of the vehicle before and after an impact and - Assessment of the behaviour of the occupant protection systems • Assessment of the dynamic behaviour of the automated driving functions before and after an impact • Accident analysis with the focus on increasing road safety • Enough information to be able to fully clarify the accident from a technical point of view.		Clarify if the system or the driver • Was, or • Was requested to be in dynamic control of the vehicle at a certain time, **for the sake of legal responsibility** Clarify if the system or the driver • Was in dynamic control of the vehicle and/or • Was requested to be in dynamic control of the vehicle, at a certain time. Position and time information when a change of vehicle control takes place between the driver and a automated driving function and vice versa. This also applies if the system prompts the driver to take over control of the vehicle or if a technical fault occurs in the system. (§63a StVG)
	What it ~~shall/~~should not do	• Detect who is driving [Identifying the user/owner/holder of the vehicle on the basis of the stored data.] • Provide any information about the surroundings of the vehicle		• Provide data aimed at accident reconstruction that are already available in the EDR • Identify the user/owner/holder of the vehicle
	PTI (Periodical Technical Inspection)	TBD No specific need for PTI because:		TBD No specific need for PTI because DSSAD will be internally (by ALKS) self-

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
		1- There are no feedback indicating difficulties to reach the EDR data after more than 10 years of usage in the USA. 2- As there is no accident before a PTI, there is no data in the EDR at PTI. 3- checking EDR function at PTI would then necessitate 'write and read' inside the internal safety related ECUs of the vehicle, which is contradictory with the needs of cybersecurity and brings a risk of triggering all the restraint system. technical verification of functionality, accuracy and storage capacity during PTI		diagnosed and it will be indicated in the ALKS regulation that ALKS does not work and can't be engaged if DSSAD does not work. As so, a malfunction of DSSAD will be visible in PTI through the dedicated information from the ALKS technical verification of functionality, accuracy and storage capacity during the PTI
	Recording Period	Just before & during crash *Reference: "5s before events 300ms after event" in Part 563* 10s before event and 5s after event FIA sees necessity to update EGR Data continuously according to technical development, esp. for automated vehicles.		Records timestamped flags while ALKS operates (there is no need for any sampling of any continuous parameter for DSSAD)
	System storage capabilities	1+ 1subsequent "EDR event" (multi event during 5 sec only if main (12V) battery not out of order) Enough storage capabilities to record further events after the first collision. Enough energy should be provided (e.g. by means of a capacitor such as for triggering the E-Call).		Records "ALKS/driver interactions after ALKS is turned ON until it is turned OFF ("disengaged")", With a dual limitation of [X.000 of timestamped flags / X months], first to be achieved. (TBC according to ACSF) *(regardless to crash)* Enough capabilities to store the data for 6 months, in case of an accident / event storage for 3 years (§63a StVG)

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
	System ~~crash~~ survivability	Resistance to R94 crash test For vehicles in the scope of R94: Resistance to R94 crash test for a minimum of 300 milliseconds (EDR does not have to record anything later than 300 ms after that kind of crash) For other vehicles: agreement with Technical Service. For all vehicles: no survivability to immersion of fire (as in CFR) The system should withstand all standard crash types. Fire resistance F30 and water resistance. Can it be ensured that the data is transmitted securely to a neutral location in the case of any type of crash?		Resistance to R94 crash test No recording required after an EDR is triggered (for vehicles in the scope of R94): there is no "driver/ALKS interaction" after a R94 crash For all vehicles: no survivability to immersion of fire (as in CFR) The system should withstand all standard crash types. Fire resistance F30 and water resistance Can it be ensured that the data is transmitted securely to a neutral location in the case of any type of crash?
	~~Battery restitution~~ **Data survivability after a crash event**	All data mandatory per the table, must be stored and retrievable after R94 crash test. …and at least for all standardised crash types		All the data mandatory per DSSAD regulation must be stored and retrievable after R94 crash test …and at least for all standardised crash types ACSF to confirm what they expect.
	"event" definition	"Event" means a crash or other physical occurrence that causes the trigger threshold to be met or exceeded, or ~~an airbag~~ **a non-reversible restraint system** to be deployed, whichever occurs first.		~~[Event: e.g. change of HAD system status, TD emission, MRM engagement/end, TO].~~ **DSSAD does not record any trace of that kind of "event" that triggers EDR, and is not triggered by any "event" of this kind.** Position and time information when a change of vehicle

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
				control takes place between the driver and the highly or fully automated system, when the system prompts the driver to take over the control of the vehicle or when a technical fault occurs in the system.
	Environmental robustness (vibrations, etc.)	Out of this regulation scope: the vehicle is crashed when data are stored, and not subject to any specific vibrations or else Are there comparable systems and corresponding requirements for them?		Self-diagnosis system: if the DSSAD does not work, ALKS is not available. (= no specific risk related to DSSAD itself) The functionality must be guaranteed for all possible driving conditions and standardized crash types.
	Malfunction detection	There are no feedback indicating difficulties to reach the EDR data after more than 10 years of usage in the USA. As with other vehicle components (e.g. airbags), the driver must be given a fault message. In addition, the functionality of the EDR should be checked at periodic intervals.		Input from ACSF is expected: DSSAD will be internally (by ALKS) self-diagnosed and it will be indicated in the ALKS regulation that ALKS does not work and can't be engaged if DSSAD does not work. As with other vehicle components (e.g. airbags), the driver must be given a fault message. In addition, the functionality of the DSSAD should be checked at periodic intervals.
Data technique				
	Where to store (in the vehicle vs. the cloud)	A Technical Regulation should be technology neutral. The request is that "Data are available and retrievable" according to the request (For EDR = "after event" / For DSSAD = "when requested, including after an event that triggers EDR") The necessary data must be in the hands of a neutral, independent third party (data trustee) in order to allow all authorized persons access to the data under the same legal conditions. In addition to storing the data in the vehicle itself, transmission to an independent third party is therefore mandatory. In the event of a vehicle being sold or after the		

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
		vehicle has been destroyed in an accident, the data trustee is the only source of clarification in the interest of all parties involved.		
	Data format	The final authorized user (will be defined by each National Legislation) must get data in comprehensive format, without any risk of corruption. simple, non-discriminatory, user-friendly and inexpensive access to data.		
	Data element	Refer to text proposal by OICA (NB: any engagement/disengagement of ALKS is visible through the DSSAD data as well as any significant interaction between the ALKS and the driver The data in the DSSAD concerning automated driving functions and their activity are insufficient. See also the list of Data Elements that should be stored		Refer to text proposal by OICA : basically “engagement (ON), disengagement (OFF) of the system, and all significant interaction between the ALKS and the driver in the meantime. According to §63a StVG (national law) • On/OFF of the automated driving function • takeover request • Takeover by the driver • Initiation of a minimum risk manoeuvre • Reporting a system malfunction or an error
	Storing duration	not less than 10 days after EDR is triggered (to be checked at Type Approval) 3 years?		[X] months if EDR is not triggered (to be determined according to storing capacity) “not less than 10 days after EDR is triggered” (same as EDR) 6 months in case of an accident / event storage for 3 years (§63a StVG) (National law)
	Retrieval means	A Technical Regulation should be technology neutral. The request is that “Data are available and delivered in due time” according to the request (For EDR = “after event” / For DSSAD = to be determined) ?		

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
	Accuracy	Refer to table incorporated in the draft Accuracy depends on the respective data element, see list of data elements.		• Accuracy of timestamp to be determined and indicated in the text • The "data elements" must be stored in the order of occurrence. The "data elements" must be stored in the order of occurrence. The accuracy must be correspondingly high, so that it can be determined at any moment, even afterwards, who oversaw the driving task at what time. In addition, a clear assignment of the timestamp to a concrete universal time is required. (Responsibility in case of a rule violation)
	Access means	See "retrieval means" simple, non-discriminatory, cost-effective access for all eligible parties		
	Erasing means (?)	FIFO type, when the memory is full (see "storage capabilities") No erase by any mean except the overwriting of the system If the memory capacity is running low, events with a lower priority should be overwritten. According to data protection, a deletion period should be set.		
	Sampling rate	Refer to table incorporated in the draft Sampling rate depends on the respective data element, see the list of data elements.		Not Applicable The sampling rate or accuracy must be so high that it is possible to determine clearly at any time who was responsible for the driving task.
	Data identification (this data really belongs to that vehicle)	This question goes far further the technical requirements (stops at retrieval): In the case the data are "on board", the VIN number of the vehicle is available on the vehicle itself. In the case the data are "outboard", the VIN number of the vehicle that provides the data will be incorporated in the data set,		

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
		and the management of the data will be compliant with the local rules applying to “road safety related data privacy” (GDPR or else). ?		
	Triggering parameter	See “event definition” The aim should be to trigger many accidents. Collisions with large mass differences, such as pedestrian accidents, are particularly problematic. A wide range of accidents could be covered by the trigger thresholds defined in the EU project VERONICA II: 1. Deployable devices (Airbag + other) 2. Δv ≥ 8km/h within 150 ms 3. Δv ≥ 6km/h within 120 ms 4. corr. Δv ≥ 2 km/h within 120 ms 5. Standstill 6. Other sensing devices like Pedestrian detection etc. 7. ABS/ESC, AEB, …. 8. Manual (e.g. E-Call) For an efficient use of the storage capacity, the events and thus the trigger thresholds should be prioritized.		Records permanently a set of timestamped significant interactions between the ALKS and the human driver, after the ALKS is engaged, and until it is disengaged, with no need for any other trigger. Records permanently the interactions between the ALKS and the human driver according to §63a StVG (national law) with an exact timestamp.
Data usage				
	Data ownership	Out of the scope of a technical regulation according to the data trustee concept		
	Data protection (privacy)	Out of the scope (legal aspects covered nationally / security covered by regulation for cybersecurity) according to the data trustee concept		
	Information to the user (driver, vehicle owner)	See text proposal by OICA ?		To be determined ?

		EDR for conventional vehicles	EDR for ADS	DSSAD for ALKS
	Who must access which data?	Out of the scope (but important to know because of technical impact) ?		
	Plausibility	Not feasible to challenge the reliability of the Inputs. Keep current practise with current EDR: “data coming from vehicle sensors/information” It must be possible to verify the " correctness " rsp. “accuracy” of the data.		
	Authorization process	Out of the scope (probably covered on a national basis) An authorisation concept shall be defined in a technological neutral way. This Regulation is without prejudice to other UN Regulations, regional or national legislations governing the access by authorised parties to the vehicle, its data, functions and resources, and conditions of such access		
	How fast to deliver the data to a third party	Out of the scope (it will be covered by the same national law that will establish “who is authorized to get the data”)		
	Cybersecurity	Covered by another Technical Regulation under establishment		