

Initial Feedback from FRAV to EDR/DSSAD Concerning Data Collection for ADS vehicles

FRAV has discussed data collection needs for ADS vehicles and concluded that data elements should be developed within a matrix that addresses the diversity of ADS and the use of data for crash analysis and in-service monitoring.

At SAE/ISO Level 3 automation, ADS vehicles are designed to transfer control to a fallback user in response to certain conditions such as an ODD exit. At Level 4, an ADS vehicle may not have driver controls and be designed for the transport of passengers or goods. An assessment of compliance with safety requirements will involve determinations on which data requirements shall apply based on the ADS configuration.

A data requirement concerning driver intervention, for example, would only be applicable to a Level 3 ADS configuration where a fallback user has access to vehicle controls enabling such an intervention. A data requirement concerning detection of an ODD exit, on the other hand, would apply across all ADS vehicles regardless of the level of automation. Therefore, FRAV recommends differentiating data requirements applicable across all ADS from requirements specific to user interactions that occur in some but not all ADS configurations.

Regarding the use(s) of the data, FRAV notes the VMAD work on a system for in-service monitoring of ADS safety performance. FRAV understands that legal constraints may differ depending upon whether data is collected and used for crash analysis or for general performance assessments. Crash data is specific to an event involving individual vehicles while in-service monitoring concerns the performance of a fleet of vehicles over time. Therefore, FRAV recommends differentiating crash-exclusive elements from data that may be useful for general performance assessment. The latter may be applied to crash analysis; however, most instances would not involve such events given their roles in nominal ADS use.

For example, registering a user intervention during the moments before a collision may be useful in analyzing a crash event. Instances of this same data element may be aggregated across a fleet of ADS vehicles to indicate the frequency of user interventions which may be useful in performance monitoring. In this example, a single data element could be applied differently depending upon whether the context involves a crash event. In the event of a collision, the data could be subject to provisions specific to analysis of crash events. Absent a collision event, the data could be subject to provisions specific to the use of data for performance monitoring and reporting.

Based on these considerations, FRAV recommends the following basic matrix of data element classifications:

Category A: Data elements for crash analysis applicable to all vehicles

Category B: Data elements for crash analysis only applicable to ADS vehicles

 Category B1: Data elements applicable to all ADS vehicles

 Category B2: Data elements relevant to ADS user interactions where applicable

Category C: Data elements relevant to general safety performance

 Category C1: Data elements applicable to all ADS vehicles

 Category C2: Data elements relevant to ADS user interactions where applicable

FRAV believes that this matrix approach to data collection would facilitate the application of requirements to individual ADS configurations. This approach would permit the application of “Category C” data elements as needed to crash analysis without compromising their value in monitoring ADS fleet performance. An illustration of the allocation of potential elements is provided in the annex.