

Invitation to the 25th Session of the GRVA Informal Working Group on Functional Requirements for Automated Vehicles (FRAV)

The 25th session of the FRAV informal group is scheduled for 15-16 February 2022 between 12:45 and 15:15 CET each day via web conference. Further details will be posted as available on the [FRAV wiki page for the session](#). Participants can [connect to this session via this link](#).

Previous Session

During the last session, FRAV reviewed the status of work pursuant to the 12th GRVA session (FRAV-24-03). FRAV noted the list of open issues identified during the review of Document 5 prior to the GRVA session.

For the 25th session, the co-chairs requested the workstreams to identify any items they expect to cover in their discussions. The remaining issues will be taken up in FRAV plenary sessions.

FRAV noted three areas of collaboration with, respectively, VMAD, EDR/DSSAD, and the GRE AV Light-Signaling Requirements (AVSR) task force.

FRAV discussed the VMAD request for feedback on safety recommendations relevant to ADS operation of a vehicle under the baseline “lane-keeping” scenario. During FRAV-VMAD leadership discussions, FRAV agreed to provide feedback by mid-February. The aim is to provide VMAD with the general requirements, detailed provisions, and behavioral competencies relevant to ADS operation of a vehicle under this initial “simple scenario”. In addition, FRAV would like to highlight external conditions that might impact eventual technical specifications for ADS safety performance under the scenario.

For the 25th session, FRAV would like to receive feedback from the experts (and workstream where applicable) on the VMAD baseline “lane-keeping” scenario. FRAV would like to reach consensus the feedback to be provided to VMAD for the next FRAV-VMAD leadership discussion.

In response to the FRAV recommendations on data collection for ADS vehicles, EDR/DSSAD requested FRAV to provide examples to further illustrate its intentions. During its last session, FRAV reviewed a data collection illustration based on transitions of control (FRAV-24-08). The purpose of this illustration is to:

- Highlight the need to structure data collection elements for application to specific ADS configurations (i.e., not all ADS are designed to transition control between a user and the system while the vehicle is in motion).
- Highlight that transitions of control involve sequences of specific steps that FRAV expects to define (such as triggering a transition of control, verifying user inputs, and determining the appropriate ADS response).
- Highlight that transition sequences will differ (e.g., whether initiated by the user or the ADS, whether involving a foreseen ODD exit, whether the user response is satisfactory).
- Highlight the need for agreement on terms and definitions and to align data collection elements and relevant performance requirements (e.g., an ADS “transition demand” is one step in a transition of control sequence which would only occur in an ADS-initiated transition of control).

During the 25th session, FRAV would like to receive any comments on FRAV-24-08 and finalize the illustration and explanations for presentation to the EDR subgroup session scheduled for 22 February.

FRAV reviewed the AC.2 guidance regarding external ADS light-signaling. AC.2 has directed FRAV to determine whether such signaling should be required and, if so, the purpose and general specifications

for any light signals. If FRAV determines a need for external light-signaling, GRVA would pass this recommendation to GRE to support AVSR work on technical specifications for the signal(s). During the 11 March AC.2 session, GRVA and GRE are expected to reach agreement on the timing for FRAV recommendations on external light-signaling.

During the 25th session, FRAV should reach consensus on expectations for a decision on whether to recommend external light-signaling and if so, for delivery of general specifications on the purpose, target, visibility, and activation of such signals.

During the light-signaling discussion, the chair of AVSR requested FRAV feedback concerning terminology for ADS control of lighting under UN Regulation No. 48. Given that lighting equipment is often activated and may be adjusted by a driver, UN R48 makes “driver” references in its specifications.¹ Therefore, GRE would like FRAV recommendations for ADS terms that could be applied to address cases where the ADS is operating the vehicle, including control over external lighting.

During the 25th session, FRAV would like to receive views from the experts on addressing these “driver” references in cases where the ADS would be performing the DDT and the driver would have shifted to the fallback-ready user role.

FRAV noted that external signaling is relevant to the work of its workstream on ADS interactions with other road users (ORU). The ORU workstream presented a proposal for an OEDR-based framework (FRAV-24-07) to develop recommendations related to ADS detection, recognition, and classification of road objects/ORU based on their detectable properties. This framework would provide the basis for developing safety recommendations regarding ADS responses to the presence of ORU and other objects in its traffic environment.

During the 25th session, FRAV would like to confirm whether the ORU workstream will develop recommendations concerning external signaling (as well as other OEDR-related recommendations) based on its OEDR framework proposal.

FRAV reviewed the status of work under the workstreams and expectations for further elaboration of the safety recommendations under Document 5. FRAV noted administrative guidelines for formal WP.29 documents, including formatting, editable figures, and prohibitions on use of bullet points in tables.

During the 25th session, FRAV would like the workstream leaders to describe their intentions for further work (if any). In particular, FRAV would like to understand the frameworks for guiding discussions and generating proposals for elaborating the structure and contents of Document 5. These may include intentions for elaboration of the working table on general requirements, detailed provisions, and verifiable criteria, interdependencies between scenarios and performance models, frameworks such as proposed for OEDR and ORU, or the application of the user roles to structuring user-interaction recommendations.

FRAV was informed about a new SAE Automated Vehicles Safety Consortium paper (AVSC) ([Best Practice for Evaluation of Behavioral Competencies for Automated Driving System Dedicated Vehicles \(ADS-DVs\)](#)). FRAV expects to receive a presentation on this paper during the 25th session and to discuss its relevance to FRAV efforts, especially with regard to ADS performance of the DDT and the feedback to VMAD on traffic scenarios.

¹ For example: “‘Direction-indicator lamp’ means the lamp used to indicate to other road-users that the driver intends to change direction to the right or to the left”. The text includes specifications for driver actions that may be permitted by lighting equipment, indicators to be displayed to the driver, and positioning of controls for driver access.

FRAV discussed expectations for possible submissions to GRVA (May and September) and WP.29 (June and November). The co-chairs reiterated that FRAV submissions to its parent bodies are for informational purposes only. FRAV's mandate is to provide neutral texts that may be adapted for application under the 1958, 1997, and/or 1998 Agreements. The co-chairs characterized the FRAV documents as status reports to update parent bodies on progress towards meeting this mandate. Therefore, FRAV submissions do not fall within the legal frameworks of any of the WP.29 Agreements and may only be submitted for review and endorsement by the parent bodies to confirm their satisfaction (or raise concerns) with the progress and direction of work as described in the documents.

During the 25th session, FRAV should reach consensus on expectations for revisions to Document 5, for submissions to future GRVA sessions, and whether FRAV might request GRVA to submit any documents to WP.29.

Session Objectives

Based on the above, FRAV expect the 25th session to cover:

- Handling of the Document 5 open issues from the January session.
- Feedback on FRAV's work and the VMAD "lane-keeping" scenario.
- Illustration of FRAV's recommendations to EDR/DSSAD on ADS data collection.
- Feedback to GRVA for AC.2 on issues involved with possible external light-signaling requirements and time needed to reach decisions and recommendations for GRE.
- Input concerning terminology relevant to provisions in UN R48 (and other regulations) that refer to driver-related specifications where the ADS would replace the driver.
- Confirmation of the ORU workstream OEDR framework proposal and role in developing recommendations regarding external light-signaling.
- Review of workstream plans for further elaboration of safety recommendations under Document 5.
- Consideration of the AVSC "behavioral competencies" paper.
- Consensus regarding further submissions to GRVA and/or WP.29 during the next 12 months.

It is helpful to receive submissions as soon as possible before FRAV sessions. If experts wish time on the agenda for presentations, please notify the secretary. Submissions can be sent to the FRAV secretary (jcreamer@americanautocouncil.org).