

Report of the 10th Meeting of the Informal Working Group on Functional Requirements for Automated Vehicles (IWG FRAV)	
Venue	Web conference
Date	27 January 2020
Documents	Submissions for the session can be found on the FRAV-10 UNECE wiki page .
Status: Draft	

<i>Agenda and 8th session report adopted.</i>	With the US co-chair presiding, FRAV adopted the draft agenda (FRAV-10-01) without change. FRAV adopted the report of the 8 th session (FRAV-08-02) without revision.
<i>FRAV noted the GRVA events calendar.</i>	FRAV discussed the scheduling of its sessions given the number of other GRVA activities of interest to stakeholders. The GRVA secretariat has provided a calendar that group secretaries can update to avoid conflicts.
<i>FRAV considered a draft progress report for the 9th GRVA session</i>	FRAV considered a draft progress report (FRAV-10-09) prepared by the co-chairs and secretary to inform GRVA of its progress, current thinking, and intentions for work during 2021. The progress report describes FRAV's approach to defining ADS, structure for ADS safety requirements, its top-down approach to the elaboration of the requirements, its current status, its coordination with the informal working group on Validation Methods for Automated Driving (VMAD), and its aims for 2021.
<i>FRAV agreed to add a preface, clarify the subsection on DDT with respect to interactions with other road users and strategic functions, and note the attention to commonality across user interfaces.</i>	<p>FRAV considered the description of an ADS for the purposes of defining safety requirements. FRAV noted that the Dynamic Driving Task (DDT) includes aspects of interactions with other road users, such as signaling driving intentions and adapting driving behavior in response to the presence or behaviors of other road users.</p> <p>FRAV agreed to add an introductory explanation to clarify that its deliberations are ongoing and aspects of the document may be subject to change.</p> <p>FRAV noted the importance of user roles and responsibilities and adherence to the long-established principles for adequate commonality across user controls, telltales, and indicators to reduce risks of misuse.</p> <p>FRAV discussed the strategic, tactical, and operational levels of driving (per Michon J.A., 1979, 1985), raising some concerns on the exclusion of "strategic levels" as outside the DDT and therefore, outside the definition of an ADS as a system that performs the entire DDT. For example, an ADS might encounter road conditions and determine that an alternate route provides a better solution to reaching the destination. Michon's inclusion of route choice as a strategic function raises an issue regarding ADS and user roles in the strategic decision to opt for an alternate route in response to a prevailing road condition (where Michon defines maneuvering in response to prevailing conditions as a tactical function). FRAV agreed to reflect this uncertainty regarding the DDT and strategic functions in the report to GRVA.</p>

<p><i>FRAV agreed to revise the subsection on scope to refer to 3+ wheeled vehicles.</i></p>	<p>FRAV noted that the paper defined the scope of the FRAV activity as concerning light and heavy 4+ wheeled vehicles where stakeholders recalled discussion of 3+ wheeled vehicles. The document explained that the UK review for the 1958 and 1998 Agreement vehicle categories identified possible gaps in the definition such that anticipate ADS vehicle configurations could fall outside the definitions. The UK raised a question regarding the handling of motorcycles with sidecars. FRAV agreed that its intention is to cover on-road ADS vehicles, including possible three-wheeled configurations (e.g., transport pods), but excluding motorcycle-derived vehicle configurations.</p> <p>FRAV confirmed its intention to address safety across all ADS configurations while providing requirements that can be applied to individual ADS configurations. In this regard, FRAV does not rule out the possible need for more narrowly focused requirements to address certain cases but aims to address ADS holistically to the extent possible.</p>
<p><i>FRAV agreed that the role of human error in crash causation highlights potential ADS benefits but suggests analogous, not literal, factors in ADS performance.</i></p>	<p>FRAV discussed the guiding principle regarding the overall level of ADS safety. In particular, FRAV discussed the clause on “avoiding human recognition, decision, and performance errors”. FRAV agreed that ADS are not human and therefore would not literally commit “human” errors. FRAV agreed that the clause aims to consider errors known to lead to crashes (as opposed to trivial errors that do not play a critical role in crash causation). FRAV agreed that while ADS do hold potential to significantly reduce human error as the leading factor in crashes, ADS cannot be expected to avoid crashes entirely or to eliminate all factors in crash causation. The presiding co-chair requested the secretary to reflect the stakeholder comments in revisions to the section of the progress reporting concerning the guiding principle.</p>
	<p>FRAV was requested to note its consideration of national and regional AV guidelines in its elaboration of the topics. FRAV recalled that these guidelines remain a benchmark for its work on safety requirements.</p>
<p><i>FRAV highlighted coordination with VMAD and noted an upcoming OICA presentation to GRVA.</i></p>	<p>FRAV approved the subsection on coordination with VMAD. The expert from OICA noted that his group together with CLEPA had submitted an informal document (GRVA-09-10) on the certification of automated vehicles to the next GRVA session. The expert confirmed that the views of Industry presented in the GRVA document were consistent with the progress report subsection 5.7. on the integration of FRAV outcomes into the New Assessment/Test Method (NATM).</p>

<p><i>FRAV agreed that the interest in motorway ADS applications involves the validation of its requirements covering all ADS configurations and use cases.</i></p>	<p>FRAV considered the section concerning the outlook and expected outcomes by the February 2022 GRVA session (for submission to the March 2022 WP.29 session). OICA noted the reference to motorway applications reflecting the VMAD priorities on assessment methods. OICA reminded FRAV of its earlier agreement to provide requirements applicable across all ADS regardless of their configuration or ODD. OICA suggested that the requirements could be verified or validated by checking their application to a motorway ADS use case but cautioned against deviating from the group's agreed and stated objective. FRAV agreed that its requirements should be "use-case neutral" to the extent possible while recognizing that certain safety aspects (such as transfers to a qualified driver in the vehicle) would be specific to a subset of ADS configurations.</p> <p>The European Commission viewed the priority as going deeper into the requirements and agreed with the OICA explanation that the motorway case would be used to verify the completeness and applicability of the requirements. As the leader of the VMAD subgroup on the Audit pillar, the EC asked for clarification on the ADS description and documentation requirements. The chair noted that the ADS description requirements are parallel to the performance requirements in order to promote uniformity in descriptions of ADS intended uses and limitations. Japan agreed with OICA's view, reiterating FRAV's goal for high-level requirements that can be applied to motorway and other applications. As a VMAD co-chair, Japan noted that VMAD would like to receive more detailed specifications with verification of their applicability to the motorway use case.</p> <p>The US explained that it was continuing to research testable cases, a framework for scenario description, and for the applications of scenarios to ADS assessment.</p>
	<p>FRAV noted additional comments and agreed to circulate a revised document to finalize the submission to the GRVA session (GRVA-09-28).</p>
<p><i>FRAV agreed to further consider the definition of "Minimal Risk Condition".</i></p>	<p>FRAV considered the comments on a definition for "minimal risk condition". SAE agreed that the comments added to the MRC definition as presented in J3016. SAE agreed that the MRC definition should be easy to understand but cautioned against changes that would make the term less clear and specific.</p> <p>FRAV agreed to consider a definition of MRC at a future session based on comments stakeholders may wish to provide.</p>

<p><i>FRAV agreed to consolidate comments on the safety topics in a single document for further consideration.</i></p> <p><i>FRAV noted interdependencies among the topics, affirming interest in a broad approach.</i></p> <p><i>FRAV agreed to further consider a “guardrails approach” from Germany at a future session.</i></p> <p><i>FRAV noted that work related to compliance with traffic laws may benefit from coordination with WP.1.</i></p> <p><i>The Netherlands suggested a workstream dedicated to user-interface issues.</i></p>	<p>FRAV noted comments received on the safety topics as presented in Document 5 (FRAV-09-05), under the initial starting points (FRAV-08-09), and in the request for comments after the previous session (FRAV-09-08):</p> <ul style="list-style-type: none"> • FRAV-09-06 (SAE) • FRAV-09-07 (Japan) • FRAV-10-06 (Japan) • FRAV-10-07 (Germany) • FRAV-10-08 (China) • FRAV-10-10 (Russia) • FRAV-10-11 (Netherlands) <p>SAE noted that the statement, “the ADS should perform the DDT” should be that “the ADS should be capable of performing the DDT”. The topics should also be clarified to distinguish between requirements for an ADS designed to transfer control to an in-vehicle user and ADS vehicles without manual controls.</p> <p>Japan noted its interest in revising the MRC definition for clarity and precision. Japan also noted an interest in further consideration of the statement that “the ADS should respect traffic rules”. Japan is in consultations with its national police and suggested that coordination with WP.1 would be beneficial.</p> <p>Germany briefly introduced its concept for a “guardrails approach” to ADS safety. Germany’s main point is that the requirements should not regulate the behavior of the ADS as much as set high-level requirements for performance. Germany requested stakeholders to review its comments and provide any input or questions.</p> <p>China expressed concern that the structuring of the topics might hinder understanding of the interrelationships and interdependencies among the items. Some form of restructuring might remove this concern. China also noted that OEDR comes first, then detection, and then control response of the ADS and suggested that the ordering of topics might reflect this. China also suggested clarifying the intent of the “maintain operational safety” heading. China stressed that following traffic rules should reflect differences across regions and localities. China also suggested that ADS performance should be better than human performance. China suggested clarifying that an ADS should respond safely to user input errors. China expressed concern with “short-duration ODD exits”, expressing an interest in defining “short duration” and addressing the possibility of a crash event during this period.</p> <p>The Netherlands reviewed its comments regarding ADS interactions with the user. The main addition stresses a need for commonality across ADS interfaces to prevent user confusion. The Netherlands suggested to further detail specifications towards this end. The Netherlands believed that its views were consistent with comments from Germany.</p> <p>FRAV instructed the secretary to consolidate the comments in a single document for the next session.</p>
<p><i>FRAV noted the increasingly dense calendar of GRVA-related meetings and need for time to allow ample consideration of proposals before each session.</i></p>	<p>FRAV noted the increasing number of GRVA activities and its impact on the meeting calendar and stakeholder workload. The leadership was concerned over the frequency of meetings and wanted to ensure that stakeholders have sufficient time to consider topics and prepare for each session. CLEPA noted a need for sufficient time to review submissions and proposals within its membership prior to their discussion during a session.</p> <p>The leadership agreed to consider the GRVA calendar and aim to provide more time for preparations in between sessions.</p>