**Draft Meeting Minutes of the 13th session of the Taskforce on Advanced Driver Assistance Systems (TF on ADAS)**

Date: 1st of June 2022

Co-Chairs: Mr. Andrei Bocharov (Russian Federation), Mr. Antony Lagrange (EC)

Secretary: Mr. Marc Van Impe (AVERE)

Participants: Total about 60+ participants

1. **Welcome and Introduction**

* Mr. Andrei Bocharov, acting as the Chair of the meeting, welcomed the participants.

1. **Approval of the agenda**

* The Chair introduced the agenda ADAS-13-01Rev2, the meeting’s running order and outlined the meeting objectives. The agenda was subsequently adopted.

1. **Approval of the Meeting Minutes of the 12th meeting of the TF on ADAS**

* The Minutes of the 12th TF on ADAS meeting (ADAS-12-06) were adopted.

1. **Consideration of the pending proposals for amending UN Regulation No. 79**

* The Chair invited OICA-CLEPA to provide an updated on the status of document GRVA/2021/09.
* OICA-CLEPA noted that stakeholders had been invited to provide feedback to GRVA-09-30, but that additional feedback was not received. OICA-CLEPA explained that it is willing to discuss the content or applicability of the 10% tolerance proposal to specific values. OICA-CLEPA proposed to apply the tolerance to the general critical situation value. OICA-CLEPA subsequently reviewed the justifications noting that the limited window to complete a lane change is limited further due to the required system margins that have to be maintained. OICA-CLEPA had suggested two options for the application of the tolerance to the critical distance: (i) to the resulting distance, or (ii) to the remaining time gap. OICA-CLEPA pointed out that the impact of applying the tolerance in terms of the approaching vehicle’s deceleration is minimal and remains safe.
* Germany thanked OICA-CLEPA but expressed concern that the tolerance applied to the critical distance with significant difference in vehicle speeds would result in a crash.
* OICA-CLEPA thanked Germany however pointed out that the impact of the tolerances was calculated and indicated within the justification section of GRVA-09-30. OICA-CLEPA requested further clarification from Germany on this point.
* Germany noted that their calculations resulted in different outcomes than presented by OICA-CLEPA.
* OICA-CLEPA suggested to discuss the difference in outcomes following today’s session and invited further comments from contracting parties.
* Germany noted that their calculations also considered higher ‘*delta\_V*’s than was indicated in OICA-CLEPA’s calculations but indicated willingness to discuss further. Germany further commented that the tolerance could be applied to add to the critical safety requirement.
* The Netherlands stated that during last week’s GRVA session, JRC had informed stakeholders that they would execute a market surveillance study on three ACSF vehicles in June and July. Netherlands inquired whether it would be possible to include the 10% (and ACSF 7 seconds) issue?
* Japan expressed its concern with the proposal and requested OICA-CLEPA to provide additional data or information to justify the 10% value considering the importance of the critical situation formula.
* AVERE noted that part of the problem with the current critical situation formula is that it assumes static vehicle speeds and ignores acceleration/deceleration potential of the ego vehicle. This makes the formula abstract, rather than representative of real-world lane changes.
* The Chair noted that there might be technical reasons that justify the introduction of a tolerance.
* OICA-CLEPA thanked Japan and noted that the formula was defined during the ACSF discussions without explicit research having occurred with real-world systems, as such the formula was defined with the consideration of what appears appropriate.
* ITU inquired whether the same values are applied in ECE R157 for lane change systems.
* The Chair noted AVERE’s input and suggested that the OICA-CLEPA could perhaps tweak the values in the formula itself.
* Germany noted that ‘*tB*’ was defined based on research regarding driver reaction times and that 3 m/s2 was considered as the limit of comfortable driving. Germany further supported the request by Japan for further evidence.
* The Chair invited industry to come with additional information based on the learnings from the fleet on the road and closed this agenda item.

1. **Drafting the new UN Regulation on ADAS**

Action item 5-2: Stakeholders are invited to provide input to the content of the draft UN Regulation.

Action item 6-6: Industry & Stakeholders to consider annexes 3 and 4 of the draft Master Document and provide input.

Action item 8-3: Stakeholders to provide input on whether the concept of ‘Tactical functions’ should be considered within the DCAS regulation.

Action item 8-6: OICA-CLEPA to submit a proposal clarifying ‘basic support’ and ‘controllable’ as outlined in 5.3.2.4.2 and 5.3.3.1.

Action item 11-1: TF Leadership to set up a smaller drafting group. TF ADAS participants to indicate interest in participation.

Action item 11-2: Any stakeholders to indicate interest in checking ISO 21448 provisions against the content of the master document.

5.1. Report of the Drafting Group.

* The Chair introduced GRVA-13-45 which outlined a report on the Taskforce and Drafting Group activities. No comments were received.

5.2. Status of review of the Master Document by the Drafting Group

* The Chair invited OICA-CLEPA to introduce ADAS-13-03.
* OICA-CLEPA thanked the Chair and explained that the document outlines a first proposal to amend the structure of the master document in order to align more closely with typical ECE regulation structure, while maintaining the current content of the master document. OICA-CLEPA explained that the introduction should contain the context of the regulation as well as the main principles. OICA-CLEPA further proposed to aggregate system requirements into a ‘Specifications’ section, noting that the differentiation between lane keeping, lane changes and transitions between lane-keeping phases is currently under discussion by industry. OICA-CLEPA proposed to aggregate DCAS and driver interaction in both directions into a single section. This includes assessment of driver engagement which should contain evaluation criteria that may have to depend on the specific DCAS functionality. OICA-CLEPA further noted that the current document misses a section on test procedures which may be advantageous to have specifically defined (similar to ECE R152).
* AAPC supported OICA-CLEPA’s proposal and noted that this is a good first effort to ensure that the approach is completed in a logical way. AAPC indicated preference to remove the introduction section considering the regulation should be sufficiently clear, and suggested that not only chapter 5 but also chapter 6 would contain specifications. AAPC shared concern with the currently drafted functional requirements which may require further consideration. Lastly, AAPC noted that the section on driver information may need adjustment or may be redundant provided the DCAS is sufficiently intuitive and transparent about its capability. Driver evaluation may be a better term rather than driver monitoring.
* EC-JRC thanked OICA-CLEPA for the proposal and noted that some parts focused on assessment could be added which may go beyond physical testing, which were part of recent regulatory developments (e.g. the EU ADS Implementing Regulation). EC-JRC will provide a proposal on this in the coming months.
* Japan thanked OICA-CLEPA for the proposal and noted that it did not have sufficient time to review the draft. Japan inquired whether this document is a proposal from the Drafting Group, or a proposal from OICA-CLEPA? In addition, Japan inquired whether the intent of the proposal to align the master document with other regulations in terms of structure, or whether there is additionally an intent to add content?
* OICA-CLEPA explained that they had assumed responsibility to come with a proposal on how to best structure the regulation which is to be reviewed by the Drafting Group. This proposal is a first draft to facilitate that request. In addition, OICA-CLEPA confirmed to also review the content of the regulation for its alignment with the fundamental principles and to identify any gaps or issues. OICA-CLEPA explained that this work is still ongoing where the document is intended to be a first indication.
* The Chair confirmed this interpretation, noting that the document will be reviewed by the Drafting Group during the next meeting. The Chair invited any comments to the document by all stakeholders which can then be considered during the next Drafting Group or Taskforce session.

5.3. The approach of validation of ADS in the new EU ADS Regulation, its relevance to NATM and possible and recommended implementation in the Master Document for the assessment of DCAS

* The Chair invited the EC-JRC to introduce ADAS-13-04.
* EC-JRC thanked the Chair and explained that the document reviews the developments in Europe in defining an regulation for Automated Driving, containing e.g. assessment requirements that may be relevant for DCAS. EC-JRC explained that innovative approaches in line with the NATM developments at VMAD were implemented so that a blended approach based on multiple assessment criteria (safety as a measurement, safety as a process and safety as a threshold) was defined. The integrated NATM is based on three pillars (audit of the safety management system and general safety assessment, track testing and real world testing as well as in-service monitoring). The EC-JRC noted that the EU ADS regulation addresses specific use cases (shuttles and robotaxis, automated valet parking and logistics) as SAE level 4 systems. Annex 1 of the EU ADS regulation requires an information document with general and detailed information on ADS, the design concept, it’s safety concept, etc. Annex 2 addresses performance requirements based on nominal, critical and failure scenarios, ODD boundaries, minimum risk maneuvers and Human-Machine Interaction. Residual risk is evaluated according to the declared acceptability criteria. Annex 3 focuses on compliance assessment, which is currently missing in the DCAS master document. The compliance assessment includes a consideration of the most relevant scenarios, assessment of the design concept and the safety management system, tests in the most relevant traffic scenarios, evaluation of the virtual toolchain and in-use service monitoring requirements. Regarding the assessment of scenarios, the document describes several but allows for a method to generate scenarios which are relevant to the ADS ODD. EC-JRC suggested that actions initiated by DCAS, actions to prevent imminent collisions, anticipatory behavior and ability to appropriately engage in traffic (string stability) could be a focus of assessment in DCAS. A similar logic as regards the creation of a scenarios database for logical scenarios, audit and assessment, physical testing (taking into account the human factor), simulation and virtual testing could be possible. In-service monitoring and reporting principles are relevant, but may require definition of new occurrences.
* The Chair thanked EC-JRC for the presentation and noted that the EU ADS regulation provides evidence that the assessment methods for ADS can be applied, with some modification, for DCAS (e.g. DCAS should not deteriorate traffic).
* OICA-CLEPA thanked EC-JRC for the summary, but noted that the EU ADS assessment approach may be considered as a toolbox to take some examples from. OICA-CLEPA expressed a concern with the risk of overregulating simple, low capability ADAS systems. Further, OICA-CLEPA noted that the regulation does not approve or assess the driver, though only focuses on the system’s support. OICA-CLEPA expressed support for the audit in context of the CEL assessment, but preferred the definition of specifications with related test procedures.
* EC-JRC partially agreed with OICA-CLEPA considering the significant variety of DCAS systems (such as ADS). The approach in ECE R157 already reflects to a large extent the approach in the EU ADS regulation with the exception of the compliance assessment and focus on operational experience. EC-JRC noted that such operational experience is critical in other industries for the continued improvement of relevant regulations. For simple systems, a lighter testing and assessment approach may be valid.
* ETSC expressed strong support for the integration of in-service monitoring requirements in the DCAS regulation, noting this was part of the set of recommendations from the study of the Dutch Safety Board.
* OICA-CLEPA noted that the fundamental difference between DCAS and ‘simple ALKS’ is that the responsibility for the driving task stays with the driver.
* EC-JRC agreed that the main difference is in the involvement of the driver in safety concepts, which is a big difference that adds complexity.
* AAPC thanked EC-JRC and urged the Taskforce to focus on the actual performance of DCAS, and to subsequently derive assessment requirements from that point. AAPC noted that FRAV/VMAD had just been given an extension and argued there may be a risk of opening a ‘pandora’s box’ of topics to work on.
* AVERE thanked JRC for the presentation and indicate our support to explore these tools going forward. The large variety of DCAS system may complicate the definition of an encompassing set of test procedures.
* The Chair noted that inspiration can be taken from the approach in Russian standards where each established requirement is matched with the appropriate assessment method(s).
* EC-JRC noted that these methods were developed based on experience testing with ADAS systems, as such these consideration may be relevant DCAS. EC-JRC questioned whether DCAS systems would be less complex than ADS functional capability in certain environments. The EU ADS assessment requirements are intended to be as flexible as possible in consideration of the variety of systems that may come under assessment, which is a relevant consideration in the context of this discussion as well.
* Germany agreed with EC-JRC and challenged earlier statements regarding VMAD and FRAV, noting that those are intended to guide the development of regulation which is happening in this Taskforce. As such, the considerations from VMAD should be very relevant for outlining how assessment is approached.
* EC-JRC noted that validation approaches - including audit of SMS and operational experience feedback - are used also for railway systems, where level 3 driving automation has not yet been achieved.
* The Chair invited OICA-CLEPA to provide any updates regarding the ongoing work to cluster DCAS systems.
* OICA-CLEPA confirmed that industry discussions are ongoing and that further input would be provided in a future session.

Action items 8-6 and 11-1 can be closed.

1. **Timing**

* The Chair suggested the Drafting Group to meet by the second half of June in order to review the existing documents as well as any further progress. The next Taskforce session will be planned for the middle of July and will be organized depending on the progress achieved within the Drafting Group. The Chair invited any comments or questions. No comments were received.

1. **AOB**

* The Chair invited any input on ADAS-13-03 from stakeholders which would in turn be revised by the Drafting Group ahead of the next Taskforce session.

1. **List of Action Items**

* The following action item remain open:
  1. Stakeholders to comment with safety concerns on the ADAS use cases.
  2. Stakeholders are invited to provide input to the content of the draft UN Regulation.
  3. Industry & Stakeholders to consider annexes 3 and 4 of the draft Master Document and provide input
  4. Industry to provide further data based on accident statistics to aid the review of use cases
  5. OICA-CLEPA to organize a side-discussion on driver engagement, subtle interventions and performance restrictions.
  6. Stakeholders to provide input on whether the concept of ‘Tactical functions’ should be considered within the DCAS regulation.
  7. Industry to provide written feedback to ADAS-09-07 ahead of the 12th GRVA session.
  8. Any stakeholders to indicate interest in checking ISO 21448 provisions against the content of the master document

1. **Next meeting**

* The 14th TF on ADAS meeting will tentatively take place between the 11th and 23rd of July 2022.