

Status Report of Informal Working Group on Validation Methods for Automated Driving (VMAD)

United Nations Economic Commission for Europe (UNECE)

Working Party on Automated/Autonomous and Connected Vehicles (GRVA)

September 25-29, 2023

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To provide a status update on the work of the Informal Working Group on Validation Methods for Automated Driving (VMAD) :

- Brief review of work and deliverables until June 2024
- VMAD IWG activities since GRVA 16th (May 2023)
- Future activities

VMAD Deliverables until the WP.29 June 2024



Activities	Deliverables	Timeline	
<ul style="list-style-type: none"> • Start of development of safety verification methods, linking to the status of FRAV's consideration of technical requirements for DDTs, etc. • Description how to create and maintain the catalogue for scenarios (SG1) • Description of the credibility assessment (SG2) • Description of ISM&R (SG3) • Description for RWT (SG4) 	<p>2nd iteration of the Guidelines for NATM including outcome of "outstanding issues"</p>	<p>January 2023 (GRVA, information: <i>GRVA-15-26</i>), May 2023 (GRVA, adopt), June 2023 (WP.29)</p>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
<p>Progressive increase in FRAV-VMAD collaboration towards 2024 deliverable of consolidated submission.</p>	<p>Consolidated FRAV/VMAD submission (requirements+assessment)</p>	<p>January 2024 (GRVA, information), May 2024 (GRVA adopt), June 2024 (WP.29)</p>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

VMAD activities since GRVA #16 (1)



- VMAD held its meetings on June 28 (#31) and September 15+22 (#32)
- VMAD activities are conducted by the four sub-groups work on their respective outstanding issues of work and to incorporate the results of their work into the guidelines.
- In addition, we have worked together with FRAV in a coordinated and steady manner, to a great extent via the Integration Group (separate report)

VMAD activities since GRVA #16 (2)



Sub-group activities

All subgroups have arranged a number of meetings between May-September

- Scenarios: the definition of "abstract scenarios" has been added. The development of a central scenario catalogue has turned out to be unrealistic within the given timeframe. Based on input from Safe, OICA-CLEPA, UK, China, Japan a set of common elements for scenarios are defined. Further work is needed. Completion expected before the December VMAD meeting.
- Simulation: a range of modifications suggested by industry have been incorporated (e.g. Open Loop testing), except those which impact the essence of the previous adopted version of the NATM/Guidelines. The Proof of Concept by TNO to judge the practicality of the virtual validation method is completed with a positive response.

VMAD activities since GRVA #16 (3)



- Audit/In-Service Monitoring & Reporting: Suggestions from UK for Audit have been discussed and resulted in agreed modification. Criteria for ISMR have been elaborated, including indication which ones could be provided by the OEM's. Contact with the EDR/DSSAD group since these activities are partly related.
- Track-/Real World testing: Agreement on eleven paragraphs for Track Testing, six chapters need additional work. Three paragraphs for RWT almost finished, fourteen still to be discussed. Three sessions scheduled in October to assure progress.

Future activities VMAD



- To continue the activities of the VMAD subgroups to complete the June 2024 deliverables
- Next VMAD meetings:
 - Option 6 November (Virtual)
 - 14th of December (Hybrid, Tokyo)

Thank you!

