

Submitted by the IWG on VMAD

Informal document **GRVA-10-32**
10th GRVA, 25-28 May 2021
Provisional agenda item 4(b)

Status Report of the 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)
May 25-28, 2021
WebEx



Purpose



- To provide a status update on the work of the Validation Methods for Automated Driving (VMAD) Informal Working Group (IWG). Specifically the following:
 - Deliverables
 - VMAD IWG and its Subgroups' working schedule
 - Collaboration between FRAV and VMAD
 - Upcoming VMAD Sessions

VMAD Deliverables to the World Forum for Harmonization of Vehicle Regulations (WP.29)



Based on the Framework document, VMAD has the following deliverables to WP.29:

Deliverables	Status
1 . Second iteration of WP29 guidelines for NATM addressing the “outstanding issues” identified by VMAD and the evaluation of NATM for the motorway use-case	November 2021 (information) / March 2022 (endorsement)
2 . WP29 guidelines for NATM including outcome of “outstanding issues” and translation of FRAV requirements	March 2022 (information)

VMAD IWG working schedule



- Coordinate on-going activities among VMAD Subgroups taking care to avoid overlaps between Subgroup activities. (continuously)

Target completion date: September, 2021

- Review proposed amendments to respective chapters of NATM Master Document submitted by Subgroups.
- Hold FRAV/VMAD joint session, if necessary and prepare Chapter 12 “VMAD NATM / FRAV Integration” of NATM MD.
- Propose amendments to NATM MD (second iteration draft) to the 11th GRVA session.

Target completion date: February, 2022

- Consider any feedbacks from GRVA and finalize proposal for NATM MD Second Iteration.

SG1 working schedule



- Update functional scenarios (Annex 2 of NATM MD). (continuously)

Target completion date: September, 2021

- Consider outstanding issues.
 - scenario coverage, overfitting, unusual situations, various parameters, country-specific scenarios, path/ fail criteria, ODD-based scenarios, etc.
- Propose 1st amendments to Chapter 5 “Scenarios Catalogue” of NATM MD to VMAD IWG.

SG2 working schedule



Target completion date: June, 2021

- Consider definition of a credibility assessment framework for using virtual testing in ADS validation.

Target completion date: September, 2021

- Propose 1st amendments to Chapter 6 “Simulation/ Virtual testing” (July – September)

SG3 working schedule; Audit



Target completion date: September, 2021

- Establish documentation necessary to demonstrate safety by the manufacturer.
- Establish pass/ fail criteria for audit/ demonstration. Establish conditions for validity/ renewal of assessment/ audit.

Target completion date: January, 2022

- Consider safety audit for sub-system/ components of ADS and the responsibility of the different actors within the supply chain.
- Consider necessary competences for the auditor.
- Consider relevant information open to public.

SG3 working schedule; In-service monitoring



Target completion date: September, 2021

- Identify data elements to be monitored and reported.
- Investigate reporting mechanism and reporting criteria as well as data accessibility.

Target completion date: January, 2022

- Identify reporting mechanism for new scenarios.
- Develop strategy for safety recommendation based on reported accidents/ incidents.

SG4 working schedule; Track testing



Target completion date: September, 2021

- Identify procedures, elements and technical resources/ tools that still need to be developed.
- Identify supporting components developed or to be developed by other groups at WP.29.
- Outline considerations to be taken into account when outlining/ describing the procedure(s) for track testing.

Target completion date: January, 2022

- Outline/ describe the procedure(s) for track testing that could be used to assess an ADS' safety requirements (or what externally developed resources should be referenced in the NATM).

SG4 working schedule; Real world testing



Target completion date: September, 2021

- Identify procedures, elements and technical resources/ tools that still need to be developed.
- Identify supporting components developed or to be developed by other groups at WP.29.
- Outline considerations to be taken into account when outlining/ describing the procedure(s) for real world testing.

Target completion date: January, 2022

- Outline/ describe the procedure(s) for real world testing that could be used to assess an ADS' safety requirements (or what externally developed resources should be referenced in the NATM).

Collaboration between FRAV and VMAD



- Recognizing the synergies between FRAV and VMAD, VMAD provided comments on the 40 FRAV safety topics to get a sense of how each topic may relate to or fall within the work of the respective VMAD Subgroups.

FRAV topics	SG1	SG2	SG3	SG4
1. ADS should drive safely. (Ensure safe behavior of the ADS as “the driver”)	Y	Y	Y	Y
2. ADS should interact safely with the user. (Ensure safe use of ADS and safe interactions with the user such as transfers of control, user override, etc.)	Y	Y	Y	Y
3. ADS should manage safety-critical situations. (Differentiate between normal driving and emergency situations to ensure safe responses to the latter)	Y	Y	Y	Y

38. The ADS should signal required system maintenance to the user.			Y	(Y)
39. The ADS should be accessible for the purposes of maintenance and repair to authorized persons.			Y	
40. ADS safety should be ensured in the event of discontinued production/support/maintenance.			Y	

Note: The working schedule for VMAD to evaluate the impact of the requirements on NATM may be subject to change depending on FRAV working schedule.

Upcoming VMAD Sessions



- **VMAD IWG plans to hold three more Sessions in 2021.**
 - The 19th session on July 12 – 13
 - The 20th session on September 14 – 15
 - The 21st session on November 9 – 10

Thank you!

