

Submitted by the IWG on VMAD

Informal document **GRVA-11-37**  
11<sup>th</sup>GRVA, 27 Sept. -1 Oct. 2021  
Agenda item4(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)**  
27 September-1 October 2021  
WebEx



**UNECE**

# 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
  - Work accomplished on 2<sup>nd</sup> iteration of NATM
  - VMAD IWG and its Subgroups' working schedule
  - Collaboration between FRAV and VMAD

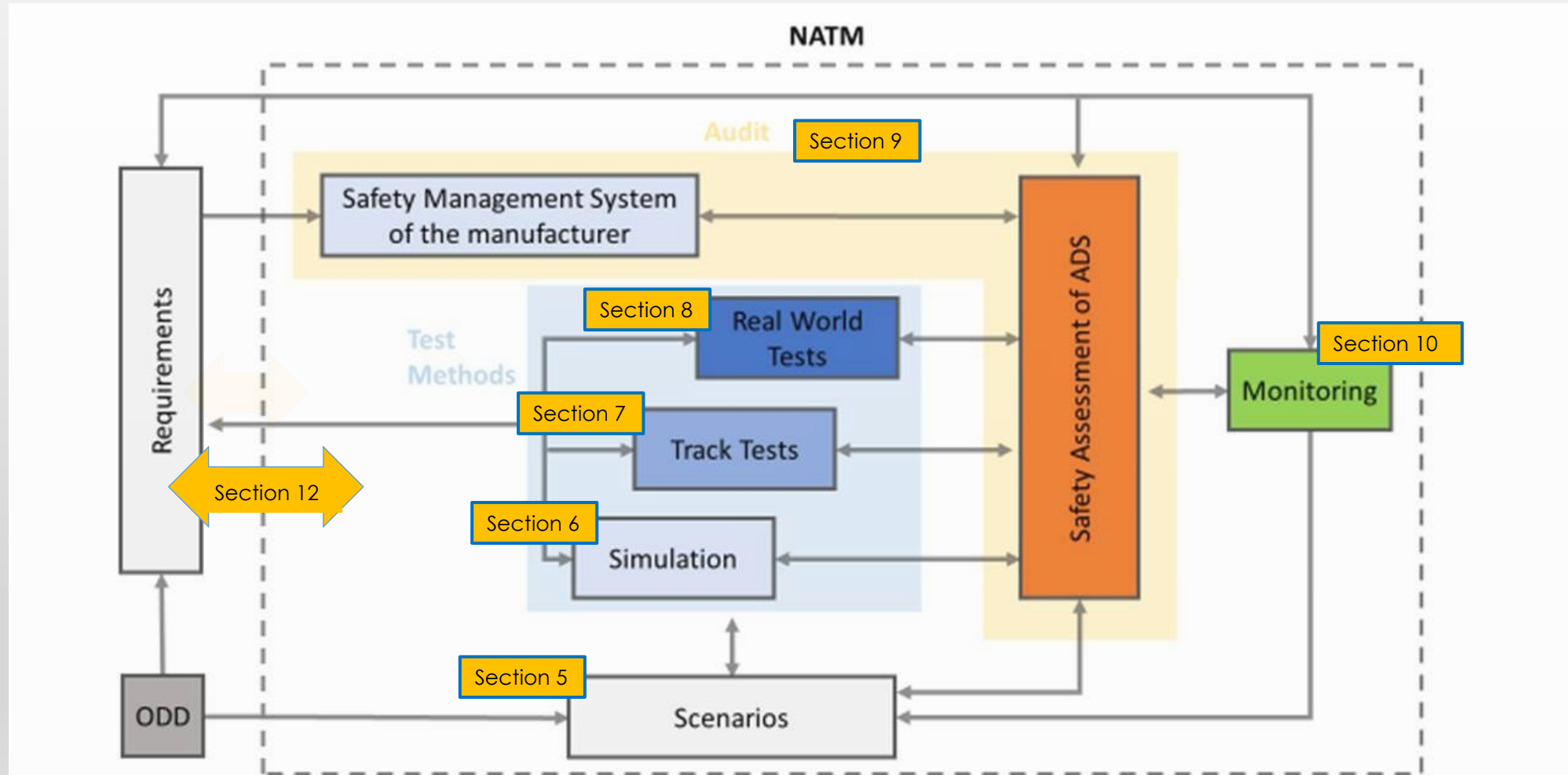
# VMAD Deliverables to the World Forum for Harmonization of Vehicle Regulations (WP.29)



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

<b>Deliverables</b>	<b>Status</b>
1 . Second iteration of 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)

# NATM Master Document



# Work accomplished by Sub Group 1 (Scenarios)



- SG1 has continued discussions on draft 2nd iteration Ch.5 and Annex 2 of NATM MD.
- Various proposals have been submitted and are bundled as a draft amendment (e.g. language regarding developing a scenario template, etc.)
- There are several unresolved issues and SG1 is going to discuss and finalize the texts for Master Document amendment at the next SG1 session (to be held October 4).
- Introduced a new objective in Ch. 5 & Annex 2 to provide examples of scenarios with lower abstraction level.
  - FRAV and VMAD agreed to select a few concrete test cases to work on collaboratively.

# Work accomplished by Sub Group 2 (Simulation/Virtual Testing)



- Introduced new section in NATM:
  - Credibility assessment for using virtual toolchains in ADS validation.
  - Ongoing discussions to refine, including how to address issues such experience and expertise.

Proposed 3 new annexes:

- Annex I - Virtual Testing Toolchain Example
- Annex II – Correlation methodologies
- Annex III – Validation examples
- SG2 will review comments on proposed documents and revise NATM as required.

## Work accomplished by Sub Group 3 (Audit and In-use Monitoring)



- Safety by design: Draft requirements under development.
- Safety Management System (SMS): Draft requirements
  - Conditions of validity of the SMS still to be refined.
- Final text for requirements still to be formally endorsed by SG3 then VMAD.

# Work accomplished by Sub Group 3 (Audit and In-use Monitoring)



- Goal/Metrics necessary for in-service monitoring still under discussion.
- Proposed data elements to be monitored and reported under discussion.
- Investigate reporting mechanism and reporting criteria as well as data accessibility (at macro level only at this stage) still under discussion.
- Big differences between motorway applications and other applications.
- Guidance from FRAV in the overall safety level to be achieved on the motorway could be useful.
- Next meeting scheduled for 12 October, 2021.



# Work accomplished by Sub Group 4 (Track Test and Real-world Test)



- Developed inventory of TT / RWT best practices/procedures and technical resources/tools (for NATM).
- Developed possible approach for a test matrix
- Further work to be done:
  - Design/elaboration of the test matrix
  - Development of test methodology (method and tools to be used) and test protocols with pass / fail criteria for TT and RWT based on FRAV input
  - Development of specific test protocols
  - Try out/validation

# Collaboration between FRAV and VMAD



- FRAV and VMAD co-chairs continue to meet regularly to facilitate the accomplishment of their respective deliverables.
- FRAV and VMAD co-chairs extended the joint meeting to SG leaders and FRAV Workstream leaders.
- FRAV and VMAD agreed to select a few test cases to work on collaboratively to develop a better synchronization between our two groups.
- Co-chairs will continue to update the GRVA members on progress.
- SG1 and SG4 have already started together with FRAV.

# VMAD IWG and its Subgroups' working schedule



- **September 29: VMAD members are asked to send written comments to the proposed revisions of the Master Document by Sept. 29**
- **October 27: VMAD21 is held to review and finalize the draft second iteration**
- **October 29: the draft second iteration is submitted to GRVA Secretary**
- **November 9-10: VMAD22 is held to consider WP29 guidelines for NATM**
- **February 7, 2022: the draft second iteration is tabled at GRVA as informal doc.**
- **March 8-11: the draft is tabled at WP29 as informal doc. for endorsement**
- **June 21-24: the draft is tabled at WP29 as formal doc. for endorsement**

# Summary



- Substantial work has been accomplished on 2<sup>nd</sup> iteration of NATM.
- Draft second iteration of the NATM Master Document will be submitted to the next GRVA.
- FRAV and VMAD agreed to select a few concrete test cases to work on collaboratively to develop a better synchronization between the two groups.

**Thank you!**

