

Revision date: Jun-24th

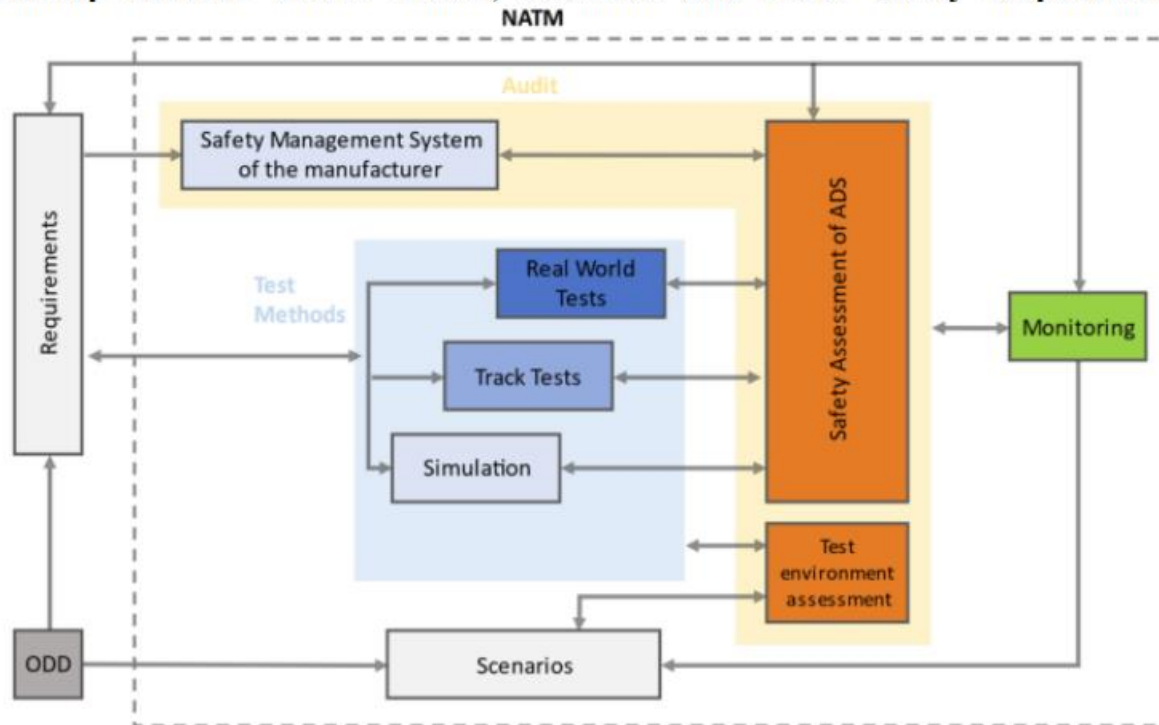
Submission to Integration Team

For the identification of column 3 sources, as agreed - please refer to GRVA 16 submissions of FRAV and VMAD:

- FRAV [GRVA-16-29 Rev1](#)
- Or: <https://unece.org/transport/documents/2023/05/informal-documents/frav-guidelines-regulatory-requirements-and-0>
- VMAD [GRVA-16-39](#)
- Or: <https://unece.org/transport/documents/2023/05/informal-documents/vmad-new-assessmenttest-method-automated-driving>

Reminder:

Relationship between VMAD Pillars, Scenarios and FRAV Safety Requirements



Proposed structure:

Section	Notes	Content Source [Blue text represents OICA/CLEPA proposal]	Comments
<p>1. Introduction</p>	<p>Explains the original Framework document, the roles and composition of FRAV and VMAD and a couple sentences on how extensively they have worked and the deliverables they have provided thus far, and the need to integrate their work by the target date set in the revised framework.</p>	<p>FRAV paras. 1.-1.9.5. VMAD paras. 1.-4.</p>	<p>Less than 1 page, Should refer also to the framework document.</p> <p>The drafters need to keep in mind that the reader will likely not be aware of the original mandate, nature of the two groups, etc. The doc should be useful as a stand-alone document with all necessary references.</p>
<p>2. Scope & Purpose</p>	<p>The purpose of the document is to integrate recommended requirements with validation methods in a way that GRVA and CPs will find useful in developing ADS regulations as a next stage. Regulatory text and specific validation criteria for ADS safety are not included. Explanation of the nature and usefulness of the annexes.</p>	<p>Based on framework document FRAV and VMAD TOR</p> <p>FRAV paras. 2.-2.2. VMAD paras. 5.-10.</p>	<p>This section (or the one above) should also refer to scope in terms of SAE levels, ADS, maybe vehicle categories.</p> <p>Should annexes be mentioned here?</p>

<p>3. Terms and definitions</p>	<p>List all terms defined by FRAV and VMAD and the specific definitions chosen for joint use. (Output of the terms and definition team)</p>	<p>FRAV & VMAD documents (FRAV Section 3, VMAD Annex I)</p>	<p>We should probably ask reviewers to identify any terms currently lacking definition that may need defining. Definitions may have to come later, but identifying any such terms now is useful.</p>
<p>4. Relationship between requirements and validation pillars</p>	<p>High level introduction to the test pillars approach, and how safety requirements can be verified by them, how credibility can be verified, how to use the document, how to use the safety requirement matrixes in the following section for developing regulations.</p> <p>Should point out the annexes and their relevance.</p> <p>[Comment: Concern that requirements are under represented – start with requirements]</p>	<p>The VMAD schematic can serve as a reference/framework for structuring this chapter – derive the description from the diagram, this will also introduce the requirements and slightly expand on them.</p> <p>FRAV paras. 5.1.-5.3. VMAD paras. 12.-13., 190.-204.</p>	<p>Summary of the multi-pillar approach to assessing ADS compliance with safety requirements, including use of scenarios, audit, virtual testing, track testing, and real-world testing.</p> <p>Note here that the pillars include broad categories of validation tests (simulated, track, and on-road), required documentation of processes used by the ADS manufacturer to design and validate the ADS and monitor its safety in use, how the regulator can audit the processes used and testing conducted by the manufacturer, and how the regulator can monitor ADS safety through the life of the ADS.</p>
<p>5. Audit and manufacturer’s documentation</p>	<p>The section covers the audit-pillar review of the ADS design and the manufacturer’s documentation requirements and capabilities to manage safety throughout the useful life of the ADS vehicle.</p> <p>This section includes compliance with documentation requirements, Safety Management System</p>	<ul style="list-style-type: none"> - FRAV requirements (Section 4) - VMAD SG3 (VMAD Section IX) - VMAD Annex III Section III <p>Audit assessment:</p> <ul style="list-style-type: none"> - VMAD par. 81. 	<p>The intent here is to focus on the audit and safety assessment process to be performed by an authority. This is not intended to discuss the specifics audits for specific validation of functional requirements. This section will tie together the required documentation as contemplated by FRAV with the audit contents and process outlined by VMAD.</p>

	assessment, capabilities to fulfil the reporting requirements, and determinations on the scope and content of the testing to be carried out (e.g., scenario selection, applicable requirements).	- FRAV 5.14.-5.14.4.	
6. ADS Performance of the DDT	<p>Matrix and content to be determined by the Matrix task group.</p> <p>This section covers DDT performance across nominal, critical, and failure scenarios, determination of scenario-specific behavioral competencies as derived from the DDT performance requirements, and application of the test methods (i.e., virtual, track, real-world) to verify ADS demonstration of behavioral competencies</p>		This is the core of the document. It contains articulation of FRAV requirements concerning the ADS’s performance of the DDT, mapped to validation pillars, and information about possible sources of and considerations concerning measurable and verifiable criteria. The structure and content of this section are to be delivered by the matrix group. Structure group has delivered proposals and examples to the matrix group for consideration.
7. ADS -User interaction:	- Same as above, but focused on the FRAV requirements related to ADS-User interaction	- FRAV requirements (Section 5.11) - VMAD SG 1,2,3, 4	Matrix as proposed linking the requirements of FRAV with pillars of VMAD
8. In-service monitoring [and reporting]	This section will explain (per the VMAD guidelines at section 122 of GRVA-16-39), that while the application of the other pillars of the NATM guidelines will assess whether the ADS is safe, according to the existing criteria, for market introduction, the in-service monitoring and reporting will gather	- FRAV requirements (Section 5.12) - VMAD SG3 (VMAD Section X, Annex IV)	[Comment: VMAD developed requirements for ISMR, should be reviewed and confirmed by FRAV]

	<p>additional evidence from its in-service operation to demonstrate that the ADS continues to be safe after market introduction, i.e., that use of the ADS does not present an unreasonable safety risk. The section will distinguish recommendations for the internal monitoring of ADS performance that ADS manufacturers should do to identify any developing safety issues from recommendations on what specific types of in-service occurrences should be reported to government authorities.</p> <p><i>[This section explains the post-NATM deployment [validation] reporting system, including the timely reporting on safety concerns and the periodic reporting on fleet performance indicators.]</i></p>		
<p>9. Annexes:</p>	<ul style="list-style-type: none"> • Collection of annexes: the detailed documents produced by VMAD subgroups and FRAV work streams teams. The annexes are the very detailed documents articulating each pillar and approach. • The column on the right is one proposal on how to arrange it (OICA+CLEPA's) 	<ul style="list-style-type: none"> • Scenario catalog (VMAD Section V & Annex II, FRAV par. 5.4.-5.12.4.2.1., FRAV Annex 1 (except section 6)) 	<p>The above chapters provide concise explanations of the requirements and their assessment. As warranted, the chapters would refer the reader to annexes providing supplemental information.</p>

		<ul style="list-style-type: none">• Virtual testing (VMAD Section VI). FRAV Annex 1, section 6, VMAD Annex III, Sections I, II.• Track testing (VMAD Section VII, Annex V)• Real-world testing (VMAD Section VIII, Annex V)• FRAV Annex A – Possible Approach to Derive Verifiable Performance (Note this may need to be split up in different sections)• FRAV Annex A Appendix 1 – Possible method for codification of	
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		<p>rules of the road</p> <ul style="list-style-type: none">• Future Work (VMAD Annex VI)• FRAV “Introduction” (FRAV Section 1) (Additional items too in detail for main document	
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