

## Comments on Integration Document

Section	Comments on Integration Document (bold and strike through)	By whom	major	minor	In line with FRAV-VMAD source?	conclusion
Sec. 2 2.4.2.	<p>The guidelines recommend the development of a scenario catalogue for use across five validation pillars:</p> <ul style="list-style-type: none"> <li>• Audit and safety-by-design assessment</li> <li>• Simulation/virtual testing</li> <li>• Track testing</li> <li>• Real-world testing</li> <li>• In-service monitoring and reporting.</li> </ul> <p><b>【comments】</b> There are inconsistencies with how these pillars are referred to. Section 4 uses some slightly different names.</p> <ol style="list-style-type: none"> <li>1. Documentation and audit</li> <li>2. Virtual testing</li> <li>3. Track testing</li> <li>4. Real-world testing</li> <li>5. In-service monitoring and reporting.</li> </ol>	Peter Edwards/ UK DfT				
Sec. 3	<p>definitions: OICA-CLEPA already shared with FRAV and VMAD comments on definitions, but they are not reflected in the text.</p> <ul style="list-style-type: none"> <li>- FRAV: Industry proposal on FRAV-related definition reviewed and discussed in Berlin with agreement on some of these that are now not reflected in the current document (e.g. “ADS fallback response”). We kindly invite FRAV to check them.</li> <li>- VMAD: Industry introduced proposal during #32 VMAD session (VMAD-32-14). No comments if favor/against received. Industry highlights the need of review them, being unclear and potentially misleading (e.g. “Critical Occurrence”)</li> </ul>	Marta Cavaliere/ OICA, CLEPA				

Sec. 4 Page 11	Under nominal scenarios, an ADS is expected to demonstrate behavioural competencies consistent with the requirements for DDT performance. <b>One of those competencies would be the ability to avoid getting into critical situations through the exercise of careful and competent driving such that, when there is an elevated risk of the occurrence of a critical situation, the vehicle's driving behaviour should be adjusted accordingly.</b>	Oliver Carsten/ Leeds				
Sec. 4 Page 12	Upon activation of a feature, the ADS performs the entire DDT necessary to operate the vehicle within the ODD of the feature. The driver, therefore, <b>shifts to the role of fallback user</b> . The ADS may transition control back to this user (i.e., fall back upon this user) in the event that the ADS can no longer perform the DDT (e.g., prior to reaching the boundary of the ODD of the feature in use).  【comments】 They could also take on the role of a passenger. A user in a L4 vehicle who will not be asked to perform the DDT is a passenger even if the vehicle has manual controls. If they do choose to take control they stop being a passenger and become a driver so the following paragraph remains correct.	Peter Edwards/ UK DfT				
Sec. 4 Page 12	These pillars are intended for use in combination(s) to produce an efficient, comprehensive, and coherent assessment of ADS compliance with the guidelines on safety performance. Figure [1] below illustrates relationships across the ADS safety requirements, ODD analysis and scenario generation, and the validation <b>pillars</b> .  【comments】 Some commentary around the links on this diagram would be helpful.	Peter Edwards/ UK DfT				

<p>Sec. 4 Page 13</p>	<p><b>Test Methods *1</b>                  Virtual testing provides means to assess ADS performance across a wide range of traffic scenarios efficiently. These guidelines recommend procedures for evaluating the reliability of the manufacturer’s virtual testing tool chains and methodologies. <b>This credibility assessment *2</b> enables confidence in applying these tools and methods, and the evidence they generate, to the assessment of ADS safety (chapter/annex).</p> <p><b>【comments】</b>                  *1. Maybe include separate sub heading for the three test methodologies.                  *2. Would it be better to promote the concept of a successful "credibility assessment". Overall, the term is probably too well embedded now but it seems to be used in slightly different ways throughout the documents. I would prefer to refer to the guidelines providing a "simulation (credibility) framework" and then the review would be an assessment of that framework. Ideally, I would like to drop the term "credibility completely" and adopt management system terminology. One aspect of the audit would effectively be the acceptance of the "Modelling &amp; Simulation management system (M&amp;SMS)".</p>	<p>Peter Edwards/ UK DfT</p>				
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Sec. 4 Page 14	<p>To the extent that an ADS encounters critical or failure situations during a real-world test drive, the response of the ADS, including exceptions to the nominal performance requirements, may be considered in conjunction with the outcomes of track and virtual testing.</p> <p><b>【comment】</b> (Major comment). This will be at odds with the real-world testing section of the NATM Guidelines, follow the forthcoming update of the guidelines. “It is recommended that real world testing assess ADS in nominal [RWT] scenarios. It is acknowledged that critical and/or failure scenarios may occur during real-world testing, but they shall not be tested on purpose. In case such scenario would occur, it shall not be excluded from the assessment.”</p> <p>Proposal therefore to adjust the paragraph to read: "To the extent that an ADS encounters critical or failure situations during a real-world test drive, the response of the ADS, including exceptions to the nominal performance requirements, <del>may</del> <b>shall</b> be considered, <b>and may be considered</b> in conjunction with the outcomes of track and virtual testing <b>where deemed appropriate.</b>"</p>	Frank Muse/ ETSC				
Sec. 4 Page 15	<p>The monitoring requires manufacturers to collect and analyse information representative of in-service ADS performance to:</p> <p>(a) Identify safety concerns, including predictive monitoring for trends indicative of emerging risks, (b) Identify instances of ADS performance inconsistent with the safety requirements and/or behavioural competencies demonstrated during the original assessment, and (c) Characterise beneficial and adverse occurrences. <b>(d) Ongoing validation of the safety case (/safety concept - depending on terminology used elsewhere)</b></p>	Peter Edwards/ UK DfT				
Sec. 5	<ul style="list-style-type: none"> <li>proposal to delete reference to FRAV and VMAD while referring to “ADS functional requirements” and “ADS validation methods”. Proposal for amendments of current VMAD chapter 5.5.7 “Information provisions to users” including provisions for maintenance and repair: based on the ADS use case these provisions could not be of user relevance, an improvement of the text could be considered.</li> </ul>	Marta Cavaliere/ OICA, CLEPA				
Sec. 6,7	<ul style="list-style-type: none"> <li>these 2 sections regard requirements but are interspersed by chapter 6.8 “Multipillar approach”. For the future readers approaching the document this is not optimal: OICA-CLEPA suggest considering moving this section after chapter 7 but would recommend</li> </ul>	Marta Cavaliere/ OICA,				

	in general to address the DDT and the User requirements in the same chapter (under different paragraphs).	CLEPA				
Sec, 8 ISMR templates Annex	<ul style="list-style-type: none"> <li>Included the OICA-CLEPA ISMR proposal shared last week with SG3. Unfortunately, there was no time during the meeting to introduce the OICA-CLEPA proposal to SG3 stakeholders: we are waiting for SG3 feedback about next meeting opportunity. In the meanwhile, we had the opportunity to anticipate the content of the document to some CPs (EC, NL and UK) raising our concerns on the current text, that we tried to report in the best way in the Integration Document comments.</li> </ul>	Marta Cavaliere/ OICA, CLEPA				
Annex 4	<p>1.3 The matrix indicates which pillars are <del>possible</del> <b>suitable</b> to test <b>the given requirement</b>, not which should be tested or the priority/order of testing as this will be use case specific.</p> <p>1.4 The matrix uses a green, orange, red, white colour scheme to indicate the relative <del>applicability</del> <b>suitability</b> of the pillars.</p> <p>1.4.1 Green is broadly <del>applicable</del> <b>suitable</b> to the requirement, can test most aspects of the requirement e.g. could test the ability to perceive any individual priority vehicle.</p> <p>1.4.2 Orange is only <del>applicable</del> <b>suitable</b> to the requirement a limited way e.g. some ODD boundaries could be tested on a test track but many will not be possible.</p> <p>1.4.3 Red is largely not <del>applicable</del> <b>suitable</b> to the requirement e.g. It would be dangerous to try and create a critical scenario in a road test with naïve traffic.</p> <p><del>4.5</del>1.6 <b>Although the real-world pillar is rated as largely not applicable (red) for requirements related to critical and failure traffic scenarios, compliance with such requirements for any critical or failure scenario occurring organically during a real-world test should nonetheless be assessed.</b></p> <p><del>4.6</del>1.7 Although certain pillars are currently rated as having limited <del>applicability</del> <b>suitability</b> (orange or red), technological advances could change this assessment in the future.</p> <p><b>【comments】</b> It is possible for example to test critical/failure scenarios during real world testing, however this is not desirable. Hence why 'suitability' would be more appropriate than 'possible'. In a similar vein, "suitability" might be more appropriate than "applicability" in paragraph 1.4 and its subparagraphs.</p>	Frank Muse/ ETSC				

other	Titles of the VMAD pillars is inconsistent – Some pillars change names in different sections e.g “simulation” vs “virtual testing”, “Audit and safety-by-design assessment” vs “Audit and documentation”. It would be best if these were consistent. Also, pillars is sometimes used generically where a more specific term would be more accurate (“test methods” in section 6 and “monitoring” in section 8)	Peter Edwards/ UK DfT				
Other	“Fallback user” is used inconsistently, we understand fallback user to be an L3 user with an L4 user with access to manual controls would be a passenger. This is how the term is used in the user group work covered in section 7 but it is used differently elsewhere (section 4). Also one of the FRAV requirements (6.7.2.1) still refers to a fallback ready user which isn’t a term we defined.	Peter Edwards/ UK DfT				
other	The ISMR matrix seems to have 2 columns that are unchanged for every requirement, the table could be significantly simplified by removing them.	Peter Edwards/ UK DfT				