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| Transmitted by the expert from EC and CLEPA for VMAD SG2 |  |

**Meeting of the VMAD SG2 on Virtual/Simulation Testing**

Date/Time: 02 December 2020. 13:00-14:00 (CEST)

Attendance: SG2 chairs (EC, CLEPA), SG2 Members (~35 attendees)

Documents shared during the meeting. *2020\_12\_02\_VMAD-SG2 v2.pptx*

**Summary**

* The EC gave a summary of the Subgroup's strategy.
* Key comments provided by stakeholder prior to the meeting were reviewed.
* It was agreed:
  + The term Virtual testing should be used instead of Simulation
  + The document should consider how virtual testing is used in the development of ADS.
  + The validation of virtual testing toolchains should consider validation on a subsystem and integrated vehicle level.
* Comments from all Members will be consolidated and EC/CLEPA will provide an updated document to the group.

**Minutes**

EC gave a summary of the SG strategy as described in the meeting presentation.

The latest update of the VMAD Master Document will include the agreed chapters on simulation.

The most mature sections should be included in the Master Document for January. If there is a lot comments on the remaining chapters then they may need to be carried over to the work after the GRVA session in February 2021.

AAPC agrees to the approach described by the EC, but suggested items 8 and 9 should be reversed in the document order.

Documentation provided my the manufacturer should be a core aspect and the ‘future of simulation’ moved to an Annex.

SAFE: several docs from other SGs were circulated for review last week. The content of Sim SG work was a lot more detailed than the other groups. Is there a chance to align with the other SGs.

EC if all members agreed on all chapters drafted by the SG, the content will submitted to the VMAD group. If co-chairs think this is too detailed then certain parts may be excluded anyway.

Japan: the ad hoc GRVA is planned for week 51 and it conflicts with the SimSG meeting

This was noted by the EC.

The group reviewed the content of the stakeholder feedback to the Simulation Chapter.

*The term virtual testing and simulation was used interchangeably, we should be consistent.*

CLEPA recommend to use the term virtual testing because it is a broader term.

AVL and VCA supported CLEPA and mentioned it is common language already used in VMAD.

*Should the paper cover development and certification of ADS.*

AAPC: the development section is useful but may be too much information for the master document at this stage – should keep it high level at the moment.

France: We should also take the development stage into account. When developing an ADS with the support of virtual testing methods, it needs to be ensured that the tools/models used are accurate.

SAFE: SOTIF and UL4600 state that the safety argument should cover the development strategies – virtual testing can support this.

SAE agreed with the last statements.

Summary: virtual testing used in the development of ADS is important for the safety argumentation. Keep it in the document. Depending on the maturity of the section, depends on what level of detail is included in the master document.

*Is qualification on the subsystems required?*

CLEPA recommended that 3rd parties may only do physical testing for integrated vehicle toolchain. Manufacturers provide documentation for subsystem validation.

EC supports the need for data on virtual models to be included.

SAFE needs more time to consider the proposal and will feedback to the group at the next session.

UK: sub systems need to be validated by a 3rd party at least once. After this the report may be carried over to different models.

SAE: At this stage virtual testing will be done by manufacturers. In the future if 3rd parties are able to conduct these tests then it is important to review the relationship between virtual testing and the other processes and assessment methods.

France: The comparison of models to real world data is mentioned in the doc. This is too high level and should be described in more detail.

France will provide further information to this group and will present at the next UNECE IWG on AEBS M1/N1

**Action points**

* (Biagio/EC and Barnaby/CLEPA) Consolidate the comments from Members and provide and updated document to the group before 8th December.

**Next meeting**

* Time: 9 December 2020, 13:00 - 14:00 CET
* Venue: Webex (https://ecwacs.webex.com/meet/bciuffo)