

A. Explanation on VMAD — questions and answers

ACSF-21-06 VMAD

Submitted by the chairman of VMAD

Q1: Does VMAD replace AutoVeh?

Answer to Q1:

No. With the restructuring of its subsidiary working parties WP.29 directed that the roles and responsibilities for the technical aspects of the “AD” element of the ITS/AD Group should be managed by the new GRVA. The coordination function of the former AutoVeh now rests with GRVA.

The purpose of VMAD is to deliver the objectives of the former AutoVeh SG. 1 and SG. 2.

Q2: What are deliverables of VMAD?

Answer to Q2:

VMAD will develop methods to assess the safety of the driving performance for automated driving systems that fulfill the role of the human driver when undertaking driving tasks, including safe responses to the environment as well as safe behavior towards other road users by December 2020.

In order to create deliverables, terms of Reference have to be established that describe the intended outcomes. Separately, detail work plan, including review points (milestones) have to be established, updated, and shared among VMAD IWG and GRVA members.

Q3: Should GRVA discuss if the 3-pillar approach is appropriate?

Answer to Q3:

Yes.

At its first session GRVA requested that the informal group should prepare a full discussion regarding the 3-Pillar Approach.

WP.29 at its 176th session agreed in general on identifying the New assessment/ test method using Multi-pillar concept as one of priority topics for automated/ connected vehicles. As for Multi-pillar concept, VMAD anticipates consideration of, among other things, the elements included in the 3-pillar approach proposed by OICA. VMAD will consult with, and report progress to, GRVA at its formal sessions.

Q4: Are there any duplications with other work items of GRVA especially transition demand, driver availability recognition, information to driver?

Answer to Q4:

No. Unless otherwise directed by GRVA, VMAD would not focus on any classical functional requirements including transition demand, driver availability recognition, information to driver, but address unexplored field in view of vehicle safety concept for the operational capability expected for Level 3 or higher automated driving vehicles.

VMAD would develop validation methods to assess the driving performance for automated driving systems taking over driving tasks of the driver.

As part of its wider brief, GRVA will determine the functional requirements, perhaps by establishing additional Informal Working Groups.

Likewise, the Task Force on Cyber Security and OTA issues (CS/OTA) develops requirements to assess the vehicle and manufacturers processes with regard to cyber security and software updates.

Informal Working Groups report to each session of GRVA to ensure that their work is understood and that deviation conflicts and/or duplication is avoided.

Q5: How are new validation methods developed?

Answer to Q5:

The new validation methods will be developed in view of the vehicle safety concept for the operational capability expected for Level 3 or higher automated vehicles. The vehicle safety concept should first be discussed by GRVA and then WP.29.

For the reference, according to the guidelines of some contracting parties, the vehicle safety concepts are stipulated as something like "automated driving systems, under their operational design domain (ODD), shall not cause any traffic accidents resulting in fatalities and injuries that are rationally foreseeable and preventable".

Q6: Does the validation method replace classical functional requirements?

Answer to Q6:

No. The validation methods will be introduced as complement to classical functional requirements and their testing methods, and will support the assessment of specific functional requirements that may be developed by GRVA or other subsidiary working groups of WP.29 such as those related to transition demand, driver availability recognition, information to driver, etc.

Q7: Are there still many challenges on simulation and virtual testing?

Answer to Q7:

Yes. There are many challenges on simulation. Therefore, in addition to simulation, VMAD anticipates consideration of combination of the following elements among other things:

- i. Methodology for assessing the vehicle in a controlled environment,
- ii. Methodology for assessing the OEM's processes
- iii. Methodology for assessing the vehicle performance under real-world conditions.

In addition, VMAD will take into account existing data, research outputs, relevant standards (e.g. ISO, SAE and JSAE), UN GTRs /UN Regulations/Resolutions, and those relevant documents from countries or regions (e.g. guidelines) in developing its proposals.

Q8: Could it be possible to establish harmonized methods for on-road testing since traffic condition including traffic rules are different country by country?

Answer to Q8:

CPs may benefit from sharing internationally harmonized standards, guidelines, or best practices, even if traffic conditions are different.

The decision whether to adopt the work as regulation, guidelines or best practices will be taken by WP.29.
