

Proposal for amendments to ECE/TRANS/WP.29/GRSG/2022/07 (New Regulation No. XXX on Uniform Provisions Concerning the Approval of Motor Vehicles with Regard to their Direct Vision)

Submitted by the expert from Germany *

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I. Proposal

Insert new Paragraphs 2.30. to 2.31, to read:

- "2.30. 'automated vehicle' means a motor vehicle equipped with a system, which is able to intervene in the vehicle's movement automatically (e.g. start-off inhibition, active braking or steering intervention).**
- 2.31. 'fully automated vehicle' means a motor vehicle that has been designed and constructed to move autonomously without any driver supervision."**

Insert new Paragraphs 5.2.2.2. to 5.2.2.3., to read:

- "5.2.2.2. At the request of the manufacturer and with the consent of the Technical Service the requirements of 5.2.2. to the visible volume to the frontside, to the nearside and / or offside do not apply, if the subject vehicle is an automated vehicle and covering the corresponding area(s) of the direct vision requirements.**
- The driver shall not be able to deactivate these function(s).**
- However, the requirements to the total visible volume shall be fulfilled.**
- 5.2.2.3. The requirements of 5.2.2. to the visible volumes do not apply, if the vehicle is fully automated as defined in 2.31."**

Insert new Paragraph 6.3.3., to read:

- "6.3.3. Notwithstanding the provisions above the obscuration of the following components shall not affect the visible volume:**
- (a) windscreen wipers,**
 - (b) steering wheel,**
 - (c) sensor arrays,**
 - (d) grab handles,**
 - (e) monitors for camera-monitor-systems."**

* In accordance with the programme of work of the Inland Transport Committee for 2022 as outlined in proposed programme budget for 2022 (A/76/6 (part V, sect. 20) para. 20.76), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

II. Justification

Germany supports this new regulation, which is focusing on the direct vision from drivers eyes to provide for a greatest possible reduction of blind spots around the front of commercial vehicles. This means on the other hand, that driver's behavior and skills to judge critical situations on his own is getting more and more important. This is before the background that "more than 90 % of road accidents are estimated to result from some level of human error." [(EU) 2019/2144 Recital (23)].

It was shown by Germany, based on the analysis of the German Federal Highway Research Institute (BAST) in "VRU-Proxi-19-02 (BAST) AEBS for VRU-PROXI_v3", that the proposed amendments contribute to road safety in the same way as direct vision but for many accident scenarios additional benefits can be generated.

The combination of better direct vision and active assistance to the driver provides for the maximum reduction of blind spots in every driving situation and therefore best performance in terms of better road safety.

New/revised elements compared to the IWG proposal:

Paragraphs 2.30 and 2.31: The definitions for automated and fully automated vehicles are added. It must be assured that automated vehicles are equipped with the technology to support the driver especially during low speed maneuvers. An automatic intervention in critical situations must be ensured to avoid accidents.

Paragraphs 5.2.2.2. and 5.2.2.3: The specific requirements for automated and fully automated vehicles are defined.

Automated Vehicles: There is still the need to improve driver's direct vision since the vehicle is not performing the whole driving task on its own as compared to fully automated vehicles. The requirement for "Total Visible Volume" as defined in Table 1 of the regulation is still applicable.

On top of that the monitoring of the corresponding areas addressed by active safety systems would lead to avoidance of accidents in low speed maneuvers in any ambient condition. To ensure the maximum availability the driver shall not be able to deactivate these active safety systems.

Fully Automated Vehicles: The entire driving task is performed by the vehicle itself. There is no driver and therefore requirements to the direct vision of these kind of vehicles are seen as unnecessary. This would also allow completely new cabin designs in the future.

Paragraph 6.3.3.

Germany still has some concerns with respect to design-neutrality of the approach presented and the measurement methodology when it comes to the inclusion of obscured areas for the calculation of the partial volumes.

It is especially challenging to fulfill the separate volume requirements to the front and the sides. The IWG is planning to further work on this issue in a phase 2, but manufacturer need stable development goals and legal certainty already in the original series of the regulation.

As a quick solution to this issue, the obscuration of the listed components shall not be considered when calculating the visible volumes.

Furthermore, the mentioned components do not cover a VRU completely. A VRU can still be identified, if partly covered by e.g. a windscreen wiper. In contrast to that, the obscuration can have significant influence on the volume.

Additionally, other UN Regulations requiring these components as they are crucial for vehicle / road safety. There should not be a trade-off between different safety components. For example, a monitor for indirect view should be positioned in the best area according to the HMI to maximize the benefits.

The proposed changes to the regulation are in line with the introduction as there was the driver already identified as shortcoming in paragraph 0.2. "... the driver may have detected their (Note: VRU) presence too late to avoid collision, or may have failed to detect their presence at all. This late detection, or failure to detect, could be a result of the driver failing to look, looking but failing to see, or seeing but failing to correctly judge the risk."