

**Revised draft report of the 17th Session
GRSG informal group on
awareness of Vulnerable Road Users proximity
in low speed manoeuvres (VRU-Proxi)**

Dates: 9th, 10th and 11th of March 2021

Venue: Web meeting

Chairs: Mr. Peter Broertjes (European Commission)
Mr. Yasuhiro Matsui (Japan)

Secretary: Mr. Johan Broeders (OICA)

1. Adoption of the agenda

Document: VRU-Proxi-17-01 (Chair)

With some changes to the running order the agenda was adopted.

2. Adoption of the report of the 16th and the wrap-up VRU-Proxi session (online meeting)

Document: VRU-Proxi-16-12 Rev1 (Chair)

The Secretary received a comment on the report of VRU-Proxi-16 from LDS regarding the reported statements concerning Scania cabs. Proposed changes to the report were agreed with LDS and accepted by the group. With inclusion of these changes the report has been adopted and a revised version will be uploaded to the UNECE website.

3. State of play of close-proximity vision and detection rulemaking in the contracting parties

The EC clarified the situation concerning the implementation of GSR2. The UN regulations for BSIS, MOIS, Reversing Motion are published and will be applied as EU legislation within the framework of the GSR2. Some other UN regulations will be applied as well but may include some adaptations. Also, specific EU legislations will be written and shall be available as stable versions before the deadline in April 2021, with the possible exception of EDR that seems to be delayed a bit.

4. Forward motion Vehicle driving straight or taking off from standstill

4.1. Moving-Off Information System

Document: VRU-Proxi-17-03 (OICA)

OICA tabled a proposal for a small correction of reference to a paragraph. The Chair suggested to propose a corrigendum to GRSG. OICA will prepare an Informal Document on behalf of VRU-Proxi for submission to the GRSG for its next session.

4.2. Vehicle taking off from standstill (M1/N1)

Document: VRU-Proxi-17-04 (OICA)
VRU-Proxi-17-08 (Japan)
VRU-Proxi-17-09 (Japan)

J presented the proposal in VRU-Proxi-17-08 and provided a draft regulation in VRU-Proxi-17-09 including test procedure for vehicle taking off from standstill for categories of vehicles M1/N1. The regulation allows different options for awareness of the objects in close proximity to the vehicle: direct vision, indirect vision, camera and sensors.

- The Chair questioned why poles at the rear-view mirrors and behind the front wheels are needed. J confirmed that it needs to be determined how important these object locations are as this requires probably an extra camera.
- CLEPA questioned why the height of pole is not the same as in regulation for Reversing Motion and if the complete pole shall be visible. J answered that the height of the poles (1 m) are taken from already existing regulations on ~~detection systems in Japan~~. **driver's vision in Japan based on child's height**. It is not required to see the complete pole, any (small) part is sufficient.
- OICA questioned by tabling VRU-Proxi-04 why the poles at driver side are necessary as these are always visible. J explained that the intention of this regulation is to remove the blind spot and noted that blind spot can also occur at the driver side. The Chair reminded that in the future central driver seating must be taken into account, so in general a symmetric view could be accepted.
- OICA questioned what the difference is to the existing Japanese regulation. J explained the differences: the addition of a detection system, addition of the driver side view and the limitation of field view from passenger side mirror.

CLEPA asked the CPs and the EC if they are planning to adopt this regulation. EU and UK have no concrete plans to make this mandatory, J will adopt the regulation.

5. Reversing Motion

Document: VRU-Proxi-17-05 (OICA)
VRU-Proxi-17-10 (Japan)

OICA tabled 4 issues regarding the regulation for Reversing Motion:

Issue 1: Monitor Size Determination

In the regulation the size of the third pole used for determination of the size of the monitor is indicated with the term “coloured band” without reference or a clear definition. Also the 15x15 cm patch is not supposed to be used here as this is only applicable for the visibility check of the first row. Conclusion: the group agreed to the proposal to use the full width of the pole in the regulation instead of “coloured band”.

Issue 2: Remote Control Parking

It was proposed to allow deactivation of the detection or viewing system for reversing motion in case of an active Remote Control Parking system. FR and J could support this proposal. EC basically agreed but indicated that the condition shall be stated more general and without detailed static reference so that it is as future proof as possible.

Conclusion: OICA to add separate paragraphs to chapter 16 and 17 and to write an informal document for next GRSG session.

Issue 3: Automated Driving

It was also proposed to allow deactivation during automated driving situations where Reversing Motion would not make sense as there is no driver in control:

- 1) Alternative function for Reversing Motion (like reversing AEB)
- 2) Automated reversing function without a driver in the loop

Conclusion: The group agreed to postpone this discussion to a later stage when alternative functions are introduced. It could potentially be discussed in future VRU-Proxi meetings.

Issue 4: Visibility of optical information and rear view image

Some manufacturers are facing issues with Technical Services or Type-Approval Authorities concerning the interpretation on the visibility of the optical information and rear view image inside of the driver’s instrument cluster as these can be temporarily obscured by the spokes of a turned steering wheel. D stated that rear view image should in principle not be blocked by the steering wheel, but that more discussion might be needed. FR mentioned that there is no need to discuss this in detail for each regulation. It should be a common interpretation and shall be addressed rather in Regulation No. 121 (visibility of tell-tales and speedometer). EC noted that it seems to be a generally accepted flaw that indicators and tell-tales as well as speedometer may be temporarily obscured by a turned steering wheel, without it ever being raised as a concern. Conclusion: The group agreed that temporary obscuration of the information signal or image can be accepted and there is a general consensus that such temporary obstruction by a turned steering wheel is not seen as problematic. The IWG agreed to make a specific mention of this conclusion in these meeting minutes, to serve as the accepted justification in discussions between manufacturers, technical services and type-approval authorities on this matter.

J tabled VRU-Proxi-17-10 with a proposal to change Regulation No. 158 regarding the required additional weight of one front seat occupant for M1 / N1 mass in running order and editorial changes to Annex 10 Paragraph 1. These proposals were accepted by the IWG.

OICA will provide Informal Documents for the GRSG session in April 2021 containing proposal for issues 1 and 2 and for the proposal from J as presented in VRU-Proxi-17-10. The group shall be informed on the proposal before submitting it to GRSG.

6. Forward motion: Vehicle turning (Blind Spot Information System Regulation No. 151)

Documents: VRU-Proxi-17-02 (OICA)
VRU-Proxi-17-11 (BAST)

OICA/CLEPA proposed to amend the Working Document GRSG-121-04 by clarifying the longitudinal area close the most front wheel with clear figures being from -0.6 m up to 0.6 m in reference to the center of the most forward front wheel. This is in line with the initial intention of the requirement and is covering the area of interest considering the wheel dimensions up to the largest commonly used front wheels. The group agreed that an Informal Document with this proposal will be submitted by VRU-Proxi to the next GRSG session.

BAST presented the status of the investigations regarding the alternative (robotized) testing method as presented in GRSG 119 and explained the testing Procedure:

1. Record turn without dummy
2. Add dummy to the test
3. Perform test with vehicle and dummy.

The platform movement is “taught” to adjust / make impact position repeatable. The measured outliers stay within 20 cm. Conclusion was that this robot testing ensures a robust assessment of Blind Spot Information Systems.

The Chair questioned if there is interest within industry to make use of this alternative. OICA mentioned that some members are interested and are looking into it but it is currently not yet clear if it will work. CLEPA expressed concerns on the exact trajectories to be driven and how to deal with different wheelbases and situations with and without trailers. BAST explained that this is understood and that an area could be defined where the vehicle is allowed to drive. In that case the same vehicle trajectories can be replayed.

It was questioned if this alternative test procedure will work for future Market Surveillance tests. BAST stated that the alternative testing allows a later but still efficient activation of information signal. Every system passing the straight test will pass the robot turning tests but not the other way around. No issue as Market Surveillance will use the robot testing, if they will use the straight driving it will not work. BAST expects that Market Surveillance will use the robot test.

The group discussed about the timing and a submission of a Working Document to the GRSG session in April 2022 seems feasible. The Taskforce for this alternative test procedure will be continued and results are expected to be available in autumn 2021.

7. Direct Vision regulation for M3/N3

7.1. Status Differentiation and Limit Values

Documents: VRU-Proxi-17-06 (OICA/ACEA)
VRU-Proxi-17-07 (OICA/ACEA)
VRU-Proxi-17-12 (Taskforce DV)

VRU-Proxi-17-13 (Taskforce DV)
VRU-Proxi-17-14 (T&E)
VRU-Proxi-17-16 (LDS)

Apollo/ACEA presented VRU-Proxi-17-13 with the status of the discussions in the Taskforce DV on differentiation between vehicle groups. An update of the different limit values that were proposed during the IWG and Taskforce sessions after VRU-Proxi-13 (Osaka). Conclusion was that the Taskforce achieved a broad consensus on the differentiation into groups of vehicles but there was no consensus on the specific limit values for each defined group.

- The Chair questioned why the naming B+ was chosen. Apollo clarified that construction vehicles (B+) suffer the same difficulties as long-haul vehicles but the cabs can be mounted somewhat lower, hence referring to B. If B and B+ cause confusion, other naming is possible. T&E mentioned that “urban” is also not appropriate as in general trucks are not prohibited to enter cities.
- The Chair questioned if the differentiation is understandable and acceptable for CPs. J expressed that it is important that trucks are differentiated regarding their usage. J will provide input and clarification in the Taskforce DV meetings.
- The Chair asked the Taskforce DV to prepare a reference document that gives a clear overview on which vehicle parameters the differentiation is based on (inspired by the VECTO segmentation) including the process and rationales behind this proposal.

T&E presented in VRU-Proxi-17-14 their views and proposals regarding direct vision requirements for the different groups of vehicles:

- Category A: hybrid approach with a combined visible volume of at least 11.2 m³ (avg VRU distances: 0.6m at driver, 1.7m at front and 2.5m at passenger) and in addition a front visibility of 1.9 m³ (avg VRU distance: 1.85m).
- Category B: hybrid approach with a combined visible volume and in addition a front visibility with a VRU standing at 2m at the front. For the visible volume and front visibility an increase of the height of the VRU was proposed as a step towards the proposal from the Industry.
- Category B+: hybrid approach with a combined visible volume (same as category B + 1.0 m³) and in addition a front visibility similar to category B
- For the front visibility for category B and B+ wider assessment zones will be considered to take narrow cabs (smaller distance between A-pillars) into account as it makes no difference through which glass the driver sees the VRU in the front area of the truck. Also potentially more VRUs at the front will be considered in the front.
- For the new proposals concerning the front assessment volume, additional VRUs and VRU height more analysis work has to be done which requires additional funding.

The Chair explained to expect technical issues with separated approach as it may not be suitable for new cab designs in the future and asked for the opinions of the CPs:

- FR stated that the direct vision values have to be ambitious and proposed:
 - Category A: combined approach + separated values for front and passenger side.
 - Categories B and B+: combined approach only might be acceptable as 1st step, and more ambitious in a 2nd step.

- DK can support T&E proposal as a balanced approach.
- J supports the hybrid approach but understands the need for design freedom.
- D is in favor of combined approach and open for discussion for hybrid approach.
- UK is open to combined approach but with protection that visibility of VRUs in front of vehicle is ensured, especially for category A. The A-pillars issue is understood but ambitious targets shall be set with some overlap between the mirror fields of view and direct vision.

OICA/ACEA presented VRU-Proxi-17-06 concerning the evaluation approach. A view was given on the impact and consequences of a separated approach. One of the main messages was that a feasible balance with all other regulations is needed: cab strength, front extension (CO2 emissions), Euro VII emission, noise, etc.

- FR questioned if the concerns for a separated approach are also valid for category A. OICA/ACEA stated that it comes down to the limit values but this basically also counts for category A as the effects are the same.
- LDS stated that the proposal from T&E is moving into the direction of the Industry and the issues at the front were recognized and covered in the new proposal.
- OICA/ACEA mentioned that many regulations need to be met and it must be clear for CPs that it may have logistical consequences, especially for categories B and B+.
- DK commented that this is clear but stated that the transport will not stop and new solutions will be found. OICA/ACEA noted that more trucks could be needed for same transport task resulting in less efficient and economic and environmental consequences. The Chair stated the market will have to adapt and alternative solutions must be found.

OICA/ACEA presented VRU-Proxi-17-07 the position of the Industry indicating that the VRU safety shall be improved and reminding that all (future) legal requirements shall be kept in mind. The proposal is to establish one regulation containing 2 alternatives:

1. Combined approach with Industry proposed values for categories (A: 8.5 m3, B+: 7.0 m3 and B: 6.0 m3) and equipment of new assistance systems/functionality
2. Combined approach with values as proposed earlier in VRU-Proxi (A: 11.0 m3, B+: 9.0 m3 and B: 8.0 m3)

- D confirmed that alternative 1 would be more valuable from traffic safety point of view as accidents also occurred with clear visibility. Direct vision alone will just not solve the problem and assistance systems would be more efficient.
- D would like to analyze the relation between VRU distances and volumes and mentioned that different scenarios must be taken into account considering reaction time and braking possibilities of the driver as MOIS would help in close to vehicle scenarios. For this analysis the LDS spreadsheet will be shared on the UNECE website (VRU-Proxi-17-16). LDS stated that accident statistics shows a majority of cases at driving off from standstill. D mentioned that this is covered by MOIS. The Chair stated that the optical MOIS signal can also be missed by the driver and the warning when an accident is imminent may come late and will take time to react.
- The EC stated that GSR2 is demanding both direct vision and introduction of assistance systems. Both aspects are required separately. The EC explained that, even in case the future Direct Vision UN regulation would contain options like assistance

systems off-setting lack of direct vision, this might still be rejected by the European Parliament and/or EU Member States as EU implementing/secondary legislation as it does not seem to fulfill the GSR2 requirements on direct vision that is laid down without a recognized 'hybrid' option where the safety technology may off-set a lack of direct vision. OICA/ACEA emphasized that the proposal from the Industry is about improving road safety by either increasing direct vision combined with a more sophisticated assistance system (autonomous braking) or by more stringent limit values for direct vision. EC noted the OICA/ACEA position seems to go against the GSR2 obligations laid down by the European Parliament and EU Member States.

- LDS mentioned that with the Industry values VRUs can still completely be hidden because of the gap between direct and indirect vision which is not fulfilling the request from the European Parliament. Industry responded that GSR2 states reducing blind spot to the max possible extent and not deleting it.

The Chairs asked the position of the Contracting Parties:

- D mentioned that the limit values should be ambitious but no decision as evaluation of the different approaches is needed.
- FR reminded the group that the regulation shall mainly address requirements for direct vision for urban areas. Not convinced that assistance systems as a complementary element to direct vision is a good way as response to the GSR2.
- The Chair stated that the OICA/ACEA proposal will be rejected as it seems not to be supported by the Contracting Parties in VRU-Proxi. The IWG shall come with a proposal where the CPs have to respond to which might go into the direction of the industry by changing the required visibility of the head.
- T&E mentioned to be willing to try to achieve a compromise but also concerned on what 7-7.5m3 would mean for VRU visibility to the front.
- SE and D stated that all options are still open and no commitment is given to any of these options at this moment.
- B stated not having the opportunity to follow all the discussions. A decision cannot be made at this stage but certain ambition level is needed for inside and outside urban areas. The blind spot shall be as small as possible but all options shall be considered.

Apollo and LDS presented ideas regarding alternative shapes of the specific assessment volume at the front. The re-definition of volume to the front was based on input from manufacturers. Different options were discussed, no conclusions were drawn. To be further discussed in the Taskforce DV.

- OICA/ACEA stated that decisions shall be based on facts and not on feelings and questioned what benefit will be reached with the proposal. Chair: cost-benefit not clear, limit to costs analysis.
- T&E mentioned that their proposal will approach the proposal from the industry but funding is needed for the issues regarding VRU height and area to be seen in front. OICA/ACEA supported this and stated that funding need to be discussed in the Taskforce after the direction has been defined.
- D will come back on the VRU height and proposed to subsequently discuss about these distances and define the procedure how to check it.
- It was agreed that the required extra work for the re-calculations should contain review stages to check if it is still on the right track. This shall be further discussed in the Taskforce DV.

Conclusion:

- No decisions were made and the Chair asked the Contracting Parties to consider all options and come back with a position in the next VRU-Proxi meeting.
- The Chair concluded that the protocol could basically be drafted and that the following tasks shall be performed by the Taskforce DV until the next VRU-Proxi meeting:
 - Establish reference document that gives a clear overview on which vehicle parameters and argumentation where the differentiation is based on;
 - Define VRU height that must be visible for B and B+;
 - Define the area in front that must be seen as an additional requirement;
 - Find solutions for funding of the proposed re-calculations.

7.2. Physical Method Testing

Due to limitation by the COVID-19 situation there was no update from the Loughborough Design School (LDS) on the analysis and testing of the physical method.

8. Direct Vision regulation for M2/N2

The regulation for direct vision for the vehicle categories M2/N2 has not been discussed in this IWG meeting.

9. Next meeting

18th meeting: 26th and 28th of April 2021 (for Direct Vision)

19th meeting: [8th – 10th of June 2021, location / web meeting TBD]

10. Any Other Item

Documents: VRU-Proxi-17-15 (Secretary)
 VRU-Proxi-17-17 (EC)

The Terms of Reference were discussed and various updates and additions were agreed as laid down in VRU-Proxi-17-15.

ECF informed the group about a letter from Euro Cities to EU Ministers about VRU safety. The Chair mentioned that he responded to some cities that alignment is needed with the representatives of their countries. Proposal to ask cities to join the discussion. OICA/ACEA agreed that the views have to be aligned and fair comparison should be done on mileage and not on numbers. ETSC provided link to document that quantifies these numbers. OICA/ACEA and other parties are asked to respond to this in next meeting.

CLEPA reminded the state of play GSR2 and asked for clarification on different timelines. EC mentioned the introduction dates of GSR2, 1st phase July 2022 / July 2024, 2nd phase July

2024 / July 2026 and 3rd phase January 2026 / January 2029. EC shared document VRU-Proxi-17-17 with the application dates of GSR2. EC also explained that those dates are fixed by the EU co-legislator, irrespective of meeting the 15-month deadline or not.

CLEPA requested for adding component approval to the regulations for MOIS regulation, Reversing motion, etc. It was decided to add this as a subtask 4(d) to the Terms of Reference. This will be a subject for discussion in the 19th VRU-Proxi meeting. CLEPA agreed to prepare a document.