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Exchange of views on vehicle automation:

Categorization of automated vehicles and autonomous vehicle regulation screening

Proposal for supplement 13 to the 01 Series of Amendments to UN Regulation No. 43 (Safety Glazing)

Submitted by the expert from the Kingdom of the Netherlands *

The text reproduced below was prepared by the expert from the Kingdom of the Netherlands on behalf of the Task Force on Automated Vehicles Regulatory Screening (TF-AVRS). It is based upon ECE/TRANS/WP.29/GRSG/2025/19 as amended by GRSG-130-45. The modifications to the current text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2026 as outlined in proposed programme budget for 2026 (A/80/6 (Sect. 20), table 20.7), the World Forum will develop, harmonize and update UN Regulations to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

Proposal

Insert new paragraphs 0. and 0.1. to 0.1.3., to read:

"0. Introduction

- 0.1. Supplement 13 to the 01 series of amendments is introduced to take into account vehicles of category X and Y¹, as well as vehicles with a manual mode operating at speeds above 6 km/h which are equipped with an Automated Driving System Feature of Type 2 (ADSF-2).
- 0.1.1. The Regulation was originally drafted for vehicles with driver and manual driving controls. It is the intention of this amendment to keep the spirit of the Regulation and to extend its application to vehicles without driver and without manual driving controls in the vehicle. In the absence of driver/manual driving controls in the vehicle, provisions related to them shall not be taken into account if not already covered by this amendment.
- 0.1.2. The Regulation does apply to vehicles of categories X and Y if glazing is installed. No windscreen is required on such vehicles in case they do not have a manual mode intended to be operated on-board the vehicle. Instead, other glazing is allowed in the location where a conventional vehicle is fitted with a windscreen. The requirements for front exterior forward-facing glazing of category X vehicles are aligned with those of the upper deck of double-deck vehicle. The Regulation is amended accordingly to reflect this.
- 0.1.3. Paragraphs 4.1.1. and 4.2.1.1. of Annex 24 have been updated to reflect the situation where a driver is not performing the Dynamic Driving Task (DDT)¹. In such conditions, the light transmittance may be reduced to below 70 per cent."

Paragraph 1(a), footnote 1, amend to read:

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.78, para. 2 - <https://unece.org/transport/vehicle-regulations/wp29/resolutions>"

Paragraph 2.13., add reference to footnote ^x, to read:

- 2.13. "Windscreen" means the glazing in front of the driver through which the driver views the road ahead ^x."

Paragraph 2.13., add footnote ^x, to read:

^x In case of vehicles of category X and Y, the front exterior forward-facing glazing is not considered a windscreen"

Paragraph 2.25., add reference to footnote ^y, to read:

- 2.25. "Safety glazing material requisite for driver visibility" ^y
- 2.25.1. "Safety glazing material requisite for the driver's forward field of vision" means all the glazing situated in front of a plane passing through the driver's R point and perpendicular to the longitudinal median plane of the vehicle through which the driver can view the road when driving or manoeuvring the vehicle.
- 2.25.2. "Safety glazing material requisite for the driver's rearward field of vision" means all glazing situated behind a plane passing through the driver's R point and perpendicular to the longitudinal median plane of the vehicle through which the driver can view the road when driving or manoeuvring the vehicle."

Paragraph 2.25., add footnote ^y, to read:

^y not applicable for categories X and Y vehicles"

Paragraph 5.4.1., footnote 2, amend to read:

² The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.**78**, Annex 3 - <https://unece.org/transport/vehicle-regulations/wp29/resolutions>"

Paragraph 6.2., amend to read:

"6.2. Safety glazing materials shall in addition be sufficiently transparent, shall not cause any noticeable distortions of objects as seen through the windscreen, and shall not give rise to any confusion between the colours used in road-traffic signs and signals. In the event of the windscreen's shattering, the driver (**if applicable**) shall still be able to see the road clearly enough to be able to brake and stop his vehicle safely."

Paragraph 7, amend to read:

"7. Particular requirements

All types of safety glazing shall, depending on the category to which they belong, comply with the following particular requirements:

7.1. As regards toughened-glass windscreens, the requirements contained in Annex 4; (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

7.2. As regards uniformly-toughened glass panes, the requirements contained in Annex 5;

7.3. As regards ordinary laminated glass windscreens, the requirements contained in Annex 6; (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

7.4. As regards ordinary laminated glass panes, the requirements contained in Annex 7;

7.5. As regards treated laminated glass windscreens, the requirements contained in Annex 8; (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

7.6. As regards safety glazing faced with plastics material, in addition to the relevant requirements listed above, the requirements contained in Annex 9;

7.7. As regards glass-plastics windscreens, the requirements contained in Annex 10; (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

7.8. As regards glass-plastics panes, the requirements contained in Annex 11;

7.9. As regards multiple glazed units, the requirements contained in Annex 12;

7.10. As regards rigid plastic panes, the requirements contained in Annex 14;

7.11. As regards flexible plastic panes, the requirements contained in Annex 15;

7.12. As regards rigid plastic multiple glazed units, the requirements contained in Annex 16.

7.13. As regards rigid plastic windscreens, the requirements contained in Annex 17. (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

7.14. As regards laminated-rigid plastic panes, the requirements contained in Annex 18.

7.15. As regards laminated-rigid plastic windscreens, the requirements contained in Annex 19. (not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle)"

Annex 1A, amend to read:

5.1. In the case of windscreens ^z:

Annex 1A, insert new footnote z, to read :

^z for vehicles of category X, use paragraph 5.5."

Annex 3, footnote 18, amend to read:

¹⁸ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev. ~~78~~, para. 2 - <https://unece.org/transport/vehicle-regulations/wp29/resolutions>"

Annex 21, title, amend to read:

"Annex 21 (not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle)"

Annex 22, title, amend to read:

"Annex 22 (not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle)"

Annex 24, including footnote 1, amend to read:

"Annex 24

Provisions regarding the installation of safety glazing on vehicles

1. Scope

This annex sets out provisions regarding the installation of safety glazing in vehicles of categories M, N and O¹ in order to ensure a high level of safety for the occupants and, in particular, to provide the driver (**if applicable**) with a high degree of visibility in all traffic conditions, not only forwards but also rearwards and laterally.

It does not apply to armoured vehicles as defined hereunder in paragraph 2.3.

2. Definitions

For the purpose of this annex:

2.1. "*Vehicle*" means any motor vehicle and its trailer, intended for use on the road, having at least four wheels and a maximum design speed exceeding 25 km/h, with the exception of vehicles which run on rails and all mobile machinery;

2.2. "*Category of vehicles*" means a set of vehicles entering into the relevant category of the classification adopted in the Consolidated Resolution on the Construction of Vehicles (R.E.3);¹

2.3. "*Special purpose vehicle*", "*motor caravan*", "*armoured vehicle*", "*ambulance*", "*hearse*", "*convertible*", are respectively defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3).¹

2.4. "*Double-deck vehicle*" is defined in paragraph 2.1.6. of Regulation No. 107.

2.5. "*Normal condition of use of a vehicle*" means:

2.5.1. For a motor vehicle, when the vehicle is ready to move with its propulsion system in the running position and its movable components in the normal position(s) as defined in paragraph 2.8. below;

2.5.2. For a trailer, when the trailer is coupled to a towing vehicle in the conditions prescribed in paragraph 2.5.1. above and its movable components in the normal position(s) as defined in paragraph 2.8. below.

2.6. "*Park condition of a vehicle*" means:

2.6.1. For a motor vehicle, when the vehicle is at standstill and its propulsion system not in the running position and its movable components in the normal position(s) as defined in paragraph 2.8. below;

2.6.2. For a trailer, when the trailer is coupled to a towing vehicle in the condition described in paragraph 2.6.1. above and its movable components in the normal position(s) as defined in paragraph 2.8. below.

2.7. "*Movable components*" of a vehicle means those body panels or other vehicle parts the position(s) of which can be changed by tilting, rotating or sliding without the use of tools. They do not include tilttable (**driver**) cabs of trucks.

2.8. "*Normal position of use of a movable component*" means the position(s) of a movable component specified by the vehicle manufacturer for the normal condition of use and the park condition of the vehicle.

3. General provisions applicable to vehicles of categories M, N and O

3.1. Safety glazing shall be fitted in such a way that, despite the stresses to which the vehicle is submitted under normal conditions of use as defined in paragraphs 2.5., 2.5.1. and 2.5.2., it remains in position and continues to afford visibility and safety to the occupants of the vehicle seated and/or in standing positions as defined by the vehicle manufacturer;

3.2. Safety glazing shall bear the appropriate component type approval mark specified in paragraph 5.4. of this Regulation, followed when required, by one of the additional symbols provided for in paragraph 5.5.

3.3. Exemptions

In the case of plastic safety panes, the provisions related to abrasion resistance as referred to in paragraph 4.2.3.2. of this annex do not apply for the locations of vehicles and panes as listed below:

- (a) Motorhomes, ambulances and hearses for panes not requisite for the driver's forward and rearward field of vision;
- (b) Trailers, including caravans;
- (c) Sunroofs and glazing located in the roof of a vehicle;
- (d) All glazing of the upper deck of a double-deck vehicle;
- (e) Partitions and separating windows not requisite for the driver's forward and rearward field of vision.

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.78, para. 2 - <https://unece.org/transport/vehicle-regulations/wp29/resolutions>

For these cases, no abrasion test and symbol /L or /M is required.

4. Specific provisions applicable to vehicles of categories M and N¹

4.1. Windscreens (**not applicable for category Y vehicles and category X vehicles without manual mode operated on-board the vehicle**)

4.1.1. The regular light transmittance shall not be less than 70 per cent, **except whilst an ADS feature is active**.

4.1.2. The windscreen shall be type approved for the vehicle type for which it is intended to be fitted.

4.1.3. The windscreen shall be correctly fitted with reference to the vehicle driver's "R" point.

4.1.4. Vehicles having a maximum design speed greater than 40 km/h may not be fitted with a toughened windscreen.

4.1.5. Plastic safety windscreens shall bear an additional symbol /A/L as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.

4.2. Safety glazing other than windscreens.

4.2.1. Safety glazing requisite for the driver's forward field of vision

4.2.1.1. The safety glazing through which the driver's forward field of vision as defined in paragraph 2.25.1. of this Regulation is obtained, shall have a regular light transmittance of at least 70 per cent, **except whilst an ADS feature is active**.

4.2.1.2. Plastic safety glazing shall bear an additional symbol /B/L or /C/L, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.

4.2.2. Safety glazing requisite for the driver's rearward vision

4.2.2.1. The safety glazing defined in paragraph 2.25.2. of this Regulation shall have a light transmittance of at least 70 per cent, but where two exterior rear view mirrors are fitted, the glazing is allowed to have a light transmittance below 70 per cent, provided that it shall bear the additional symbol V specified in paragraph 5.5.2. of this Regulation, **except whilst an ADS feature is active**.

4.2.2.2. Plastic safety glazing shall bear an additional symbol /A/L, /A/M, /B/L, /B/M, /C/L or /C/M, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation. However, a Class M plastic safety glazing is allowed only in the case where the vehicle is fitted with two exterior rear-view mirrors.

The rear glazing in the folding roof of a convertible vehicle may be made of a flexible plastic pane.

4.2.3. Other safety glazing, exterior forward-facing glazing and interior glazing.

4.2.3.1. The safety glazing not covered by the definitions of paragraphs 2.25.1. and 2.25.2. of this Regulation, the exterior-forward facing glazing and interior glazing shall bear the additional symbol V specified in paragraph 5.5.2. of this Regulation, if the light transmittance is below 70 per cent.

4.2.3.2. Plastic safety panes shall bear one of the additional symbols /A/L, /A/M, /B/L, /B/M, /C/L or /C/M defined in paragraphs 5.5.5. and 5.5.7. of this Regulation. However, when the vehicle is intended for conveying passengers, panes with the additional symbols /C/L or /C/M are not allowed at locations where there is a risk of head impact.

4.3. Particular requirements for upper deck of a double-deck vehicle **and for a category X vehicle without a manual mode operated on-board the vehicle**.

4.3.1. The front exterior forward-facing glazing of the upper deck of a double-deck vehicle shall be constituted either by laminated glass or a plastic pane bearing the additional symbol /A, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.

4.3.2. **The front exterior forward-facing glazing of a category X vehicle without a manual mode operated on-board the vehicle shall be constituted either by laminated glass bearing the additional symbol /D, as defined in paragraph 5.5.8. of this Regulation, or a plastic pane bearing the additional symbol /A, as defined in paragraphs 5.5.5. and 5.5.7. of this Regulation.**

4.3.3. Paragraphs 4.3.1. **and 4.3.2.** above ~~is~~ **are** not applicable to vehicles having a maximum design speed lower than 40 km/h. However, the requirement on plastic panes classified /A is mandatory."
