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**Economic Commission for Europe**

Inland Transport Committee

**World Forum for Harmonization of Vehicle Regulations**

**Working Party on General Safety Provisions**

**116th session**

Geneva, 1–5 April 2019

Item 6(a) of the provisional agenda

**Amendments to safety glazing regulations:**

**UN Global Technical Regulation No. 6 (Safety glazing)**

Proposal for Amendment 2 to UN Global Technical Regulation No. 6 (Safety glazing)

Submitted by the expert from India[[1]](#footnote-2)\*

The text reproduced below was prepared by the expert from India to align UN Global Technical Regulation No. 6 (UN GTR No. 6) on the optional use of laminated-glass panes with improved mechanical properties especially for the front, exterior, forward-facing glazing of the upper deck of a double-deck vehicle. It is based on informal document GRSG-115-38, presented at the 115th session of the Working Party on General Safety Provisions (GRSG) (see report ECE/TRANS/WP.29/GRSG/94, para. 18). The modifications to the current text of UN GTR No. 6 are marked in bold characters.

**I. Proposal**

*Paragraph 4.1.2.2.2.*, amend to read:

"4.1.2.2.2. "XI" for laminated glass. **In addition, the appropriate application will be signified by:**

**/D For laminated-glass panes with enhanced mechanical properties**."

*Paragraph 5., Table 1 (*Summary *of performance requirements),* amend to read**:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *Windscreens* | | | | *Panes* | | | | | |
| *Laminated glass* | | *Glass plastics* | | *Uniformly toughened glass* | | *Laminated glass* | | *Double glazed unit 1/* | *Glass plastics* |
| Marking | II | II/P | | **IV** |  | /P | **XI** | **XI** /P | V | **XII** |
| Light transmittance | 5.1.1. | 5.1.1. | | 5.1.1. | 5.1.1. | 5.1.1. | 5.1.1. | 5.1.1. | 5.1.1. | 5.1.1. |
| Resistance to abrasion | 5.1.2. | 5.1.2. | | 5.1.2. |  | 5.1.2. | 5.1.2. | 5.1.2. |  | 5.1.2. |
| Resistance to temperature changes |  | 5.2.1. | | 5.2.1. |  | 5.2.1. |  | 52.1. |  | 5.2.1. |
| Resistance to fire |  | 5.2.2. | | 5.2.2. |  | 5.2.2. |  | 5.2.2. |  | 5.2.2. |
| Resistance to chemicals |  | 5.2.3 | | 5.2.3. |  | 5.2.3. |  | 5.2.3 |  | 5.2.3 |
| Resistance to radiation | 5.3.1. | 5.3.1. | | 5.3.1. |  | 5.3.1. | 5.3.1. | 5.3.1. |  | 5.3.1. |
| Resistance to high temperature | 5.3.2. | 5.3.2. | | 5.3.2. |  | 5.3.2. | 5.3.2. | 5.3.2. |  | 5.3.2. |
| Resistance to humidity | 5.3.3. | 5.3.3. | | 5.3.3. |  | 5.3.3. | 5.3.3 | 5.3.3. |  | 5.3.3. |
| Optical distortion | 5.4.1. | 5.4.1. | | 5.4.1. |  |  |  |  |  |  |
| Image separation | 5.4.2. | 5.4.2. | | 5.4.2. |  |  |  |  |  |  |
| Fragmentation |  |  | |  | 5.5.1.1. | 5.5.1.1. |  |  |  |  |
| Head-form | 5.4.3.  2/ | 5.4.3.  2/ | | 5.4.3.  2/ |  |  | **5.4.3.5.**  **3/** |  | 5.5.3.2.  2/ |  |
| 2,260 g Ball | 5.4.4. | 5.4.4. | | 5.4.4. |  |  | **5.4.4.2.**  **3/** |  |  |  |
| 227 g Ball | 5.4.5. | 5.4.5. | | 5.4.5. | 5.5.1.2. | 5.5.1.2. | 5.5.2.1. | 5.5.2.1. |  | 5.5.2.1 |

1/ Each component pane shall satisfy the appropriate tests for the type of glazing.

2/ See paragraph 4.2.2.

**3/ These tests shall only be carried out on laminated-glass panes bearing the additional symbol /D.**

Table 1 - Summary of performance requirements"

*Insert new paragraphs 5.4.3.5. to 5.4.3.5.4.2.,* to read:

"**5.4.3.5. Headform Test**

**The provisions concerning the headform test shall apply to laminated-glass panes bearing the additional symbol /D**

**5.4.3.5.1. Indices of difficulty of the secondary characteristics**

**No secondary characteristic is involved.**

**5.4.3.5.2. Number of test pieces**

**Eight flat test pieces measuring (1,100 mm x 500 mm) +10mm/-2mm shall be subjected to testing.**

**5.4.3.5.3. Test method**

**5.4.3.5.3.1. The method used shall be that described in paragraph 6.5.**

**5.4.3.5.3.2. The height of drop shall be 1.50 m  mm.**

**5.4.3.5.4. Interpretation of results**

**5.4.3.5.4.1. This test shall be deemed to have given a satisfactory result if the following conditions are met:**

**5.4.3.5.4.1.1. The test piece yields and breaks, displaying numerous circular cracks centred approximately on the point of impact,**

**5.4.3.5.4.1.2. Tears in the interlayer are allowed, but the manikin's head shall not pass through,**

**5.4.3.5.4.1.3. No large fragments of glass shall become detached from the interlayer.**

**5.4.3.5.4.2. A set of test pieces submitted for approval shall be considered satisfactory from the point of view of the headform test if all the tests give a satisfactory result**."

*Insert new paragraphs 5.4.4.2. to 5.4.4.2.3.2.,* to read:

"**5.4.4.2. 2,260 g Ball Test**

**The provisions concerning the 2,260g ball test shall apply to laminated-glass panes bearing the additional symbol /D.**

**5.4.4.2.1.Twelve square test pieces of 300 mm +10/-0 mm side shall be subjected to testing.**

**5.4.4.2.2. Test method**

**5.4.4.2.2.1. The method used shall be that described in paragraph 6.4.**

**5.4.4.2.2.2. The height of drop (from the underface of the ball to the upper face of the test piece) shall be 4 m +25/-0mm.**

**5.4.4.2.3. Interpretation of results**

**5.4.4.2.3.1. The test shall be deemed to have given a satisfactory result if the ball does not pass through the glazing within five seconds after the moment of impact.**

**5.4.4.2.3.2. A set of test pieces submitted for approval shall be considered satisfactory from the point of view of the 2,260 g ball test if at least eleven of the twelve tests have given a satisfactory result**."

II. Justification

This proposal aims to develop, in the framework of the 1998 Agreement, an amendment to UN GTR No. 6 on Safety Glazing to adapt the provisions to technical progress by providing optional use of laminated-glass panes that meet the mechanical strength requirements in the front, exterior, forward-facing glazing of the upper deck of double-deck buses instead of laminated windscreen. This is in line with similar proposal discussed at the 114th session of GRSG for UN Regulation No. 43.

1. \* In accordance with the programme of work of the Inland Transport Committee for 2018–2019 (ECE/TRANS/274, para. 123 and ECE/TRANS/2018/21/Add.1, Cluster 3.1), 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. [↑](#footnote-ref-2)