

Informal document No.
80th GRSG, 2-6 April 2001,
agenda item 6.

12

~~Distr.~~
~~GENERAL~~

~~TRANS/WP.29/GRSG/1999/12/Rev.2~~
~~13 February 2001~~

~~Original: ENGLISH~~

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on General Safety Provisions (GRSG)

Eightieth session, 2-6 April 2001

agenda item 6.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 43
(Safety glazing)

Transmitted by the Experts from Belgium and the United Kingdom

Note: The text reproduced below was prepared by the experts from Belgium and the United Kingdom in order to include provisions allowing approvals of vehicles with regard to safety glazing based on the existing provisions contained in European Community Directive EEC/92/22, and to include, in addition, installation requirements for glazing made entirely of plastic. These amendments are based on the text of Regulation No. 43 as amended by its draft Supplement 4 (TRANS/WP.29/671). This document also supersedes document TRANS/WP.29/GRSG/2000/4.

Note: This document is distributed to the Experts on General Safety Provisions only.

GE.00-

The title of the Regulation, amend to read:

"UNIFORM PROVISIONS CONCERNING THE APPROVAL OF SAFETY GLAZING MATERIALS
AND THEIR INSTALLATION ON VEHICLES "

The List of Contents, annexes, amend to read:

<u>"Annex 1</u>	-
<u>Annex 1A</u>	- Communication concerning approval (or extension or refusal or withdrawal of approval or production definitely discontinued) of a vehicle type with regard to its safety glazing.
<u>Annex 2A</u>	- Arrangement of approval marks for components
<u>Annex 2B</u>	- Arrangement of approval marks for vehicles
.....	
<u>Annex 2I</u>	- Provisions regarding the installation of safety glazing on vehicles."

The text of the Regulation,

Paragraph 1.1., amend to read:

"1.1. This Regulation applies to safety glazing materials intended for installation as windscreens or other panes, or as partitioning, on power-driven vehicles and their trailers, and to the fitting thereof, to the exclusion, however, of glazings for lighting and light-signalling devices and instrument panels, and of special bullet-proof glazings.

This Regulation does not concern double windows."

Paragraph 2.18., amend to read:

- "2.18. "Safety glazing material requisite for driver visibility"
- 2.18.1. "Safety glazing material requisite for 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;
- 2.18.2. "Safety glazing requisite for the driver's indirect field of vision" means all the glazing through which the driver can survey the road rearwards by means of any rear view mirror."

Insert a new paragraph 2.24., to read:

- "2.24. "Type of vehicle", as regards the installation of safety glazing, means vehicles of one category 1/ which do not differ in at least the following essential respects:
- The manufacturer
 - The manufacturer's **type designation**

- Essential aspects of construction and design."

1/ As defined in annex 7 to the Consolidated Resolution to Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2.

Paragraph 3.1., amend to read:

- "3.1. Approval for a type of glazing
- The application for approval of a type "

Insert new paragraphs 3.4. to 3.6., to read:

- "3.4. Approval for a type of vehicle
- The application for approval of a vehicle type with regard to the installation of its safety glazing shall be submitted by the vehicle manufacturer or by his duly accredited representative.
- 3.5. It shall be accompanied by the undermentioned documents in triplicate and the following particulars:
- 3.5.1. Drawings of the vehicle on an appropriate scale showing:
- 3.5.1.1. The position of the windscreen relative to the R point of the vehicle,
- 3.5.1.2. The inclination angle of the windscreen,
- 3.5.1.3. The inclination angle of the seat back;
- 3.5.2. Technical details concerning the windscreen and all other windows, in particular:
- 3.5.2.1. The materials used,
- 3.5.2.2. Approval numbers,
- 3.5.2.3. Any additional markings, as described in paragraph 5.5.
- 3.6. A vehicle representative of the vehicle type to be approved shall be submitted to the technical service responsible for conducting the approval tests."

Paragraph 5.1., amend to read:

- "5.1. Approval for a type of glazing
- If the samples submitted "

Paragraph 5.4.1., footnote 1/ pertinent to this paragraph, renumber as footnote 2/, and amend to read:

"2/ 1 for Germany,, 24 for Bulgaria,, 43 for Japan, 44 (vacant), 45 for Australia and 46 for Ukraine. Subsequent numbers"

Paragraph 5.5.2. Amend to read:

- "5.5.2. V in the case of glazing which has a regular light transmittance of less than 70 per cent, as **measured according to paragraph 9.1.2. of annex 3**. In the case of glazing with a regular light transmittance less than [30 per cent], this symbol shall be followed by the additional symbol [$< 30 \%$]."

Paragraph 5.5.5., amend to read:

"..... there is little or no chance of head impact

In addition, for plastic glazing which has been submitted to the abrasion resistance tests described in annex 3, paragraph 4, the following markings shall also be applied as appropriate:

- [/L] for panes with a light scatter not exceeding 2 per cent after 1000 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (see **annex 14**, paragraph 6.1.3.1.)
- [/M]^{3/} for panes with a light scatter not exceeding 10 per cent after 500 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (see **annex 14**, paragraph 6.1.3.2.)

^{3/} Mark not required if pane is marked "/L" as indicated above."

Paragraph 5.5.7., amend to read:

"..... plastic double glazed unit. In addition, the appropriate application will be signified by :

- /A for forward facing panels;
 /B for side, rear and roof glazing;
 /C in locations where there is little or no chance of head impact.

For plastic glazing which has been submitted to the abrasion resistance tests described in annex 3, paragraph 4, the following markings shall also be applied as appropriate :

- [/L] for **panes** with a light scatter not exceeding 2 per cent after 1000 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (**see annex 16 paragraph 6.1.3.1.**)
- [/M]^{3/} for **panes** with a light scatter not exceeding 10 per cent after 500 cycles on the outer surface and 4 per cent after 100 cycles on the inner surface (**see annex 16 paragraph 6.1.3.2.**)

^{3/} Mark not required if pane is marked "/L" as indicated above."

Insert new paragraphs 5.8. to 5.14., to read:

"5.8. Approval for a type of vehicle

If the vehicle submitted for approval pursuant to this Regulation meets the requirements of annex 21 to this Regulation, approval of that vehicle type shall be granted.

5.9. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another vehicle type as defined

in paragraph 2.24. above.

- 5.10. Notice of approval or of extension or refusal or withdrawal of approval or production definitely discontinued of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the 1958 Agreement which apply this Regulation by means of a form conforming to the model in annex 1A to this Regulation.
- 5.11. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:
- 5.11.1. a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval 2/;
- 5.11.2. the number of this Regulation, followed by the letter R, a dash and the approval number to the right of the circle prescribed in paragraph 5.11.1.
- 5.12. If the vehicle conforms to a vehicle type approved, under one or more other Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 5.11.1. need not be repeated; in such a case the additional numbers and symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 5.11.1.
- 5.13. The approval mark shall be clearly legible and be indelible.
- 5.14. [The approval mark shall be placed close to or on the vehicle data plate affixed by the manufacturer.]"

2/ Read footnote 2/ of para. 5.4.1.

Insert a new annex 1A, to read:

"Annex 1A

(maximum format: A4 (210 x 297 mm))

COMMUNICATION



issued by: Name of administration:
.....
.....
.....

Concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a vehicle type with regard to its safety glazing pursuant to Regulation No. 43.

Approval No Extension No.

1. Make (name of manufacturer) of vehicle:
2. Type, where appropriate, and trade description of vehicle:
.....
.....
3. Name and address of manufacturer:
4. Name and address of manufacturer's representative where applicable: ...
.....
5. Description of the type of glazing used:
 - 5.1. in the case of windscreens:
 - 5.2. in the case of side windows:
 - 5.3. in the case of rear windows:.....
 - 5.4. in the case of opening roofs:
 - 5.5. in the case of glazing other than the above:
6. ECE component type approval mark for a windscreen:
7. ECE Component type approval mark(s) for:
 - 7.1. side windows:
 - 7.2. rear windows:

- 7.3. opening roofs:
- 7.4. other glazing:
- 8. The fitting requirements have/have not 2/ been met.
- 9. Vehicle submitted for approval on:
- 10. Technical service responsible for conducting approval tests:
- 11. Date of report issued by that service:
- 12. Number of report issued by that service:
- 13. Approval is granted/refused/extended/withdrawn 2/
- 14. Reason(s) for extension of approval:
- 15. Remarks:
- 16. Place
- 17. Date
- 18. Signature

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply."

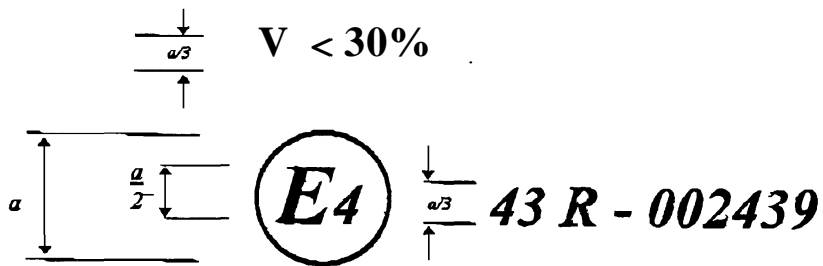
Annex 2, amend the title to read:

"Annex 2A

ARRANGEMENT OF APPROVAL MARKS FOR COMPONENTS 1/
(see paragraph 5.5. of this Regulation)"

In addition, add, after the approval mark example for **safety glazing** having a regular light transmittance < 70 per cent, a new example of approval marks, to read:

"**Safety glazing** having a regular light transmittance < 30 per cent

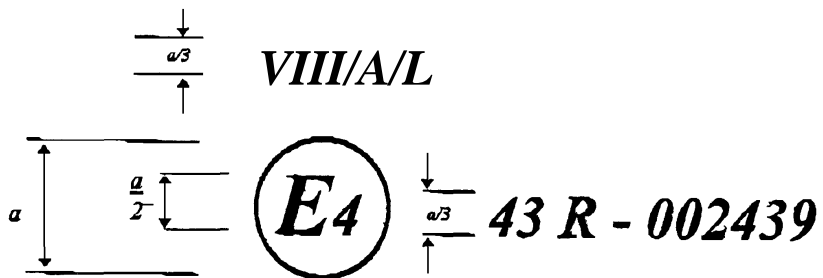


a = 8 mm min.

The above approval mark affixed to a **safety glazing** with a regular light transmittance of less than 30 per cent as determined by the test described in annex 3, paragraph 9.1, shows that the component concerned has been approved in the Netherlands (E 4) pursuant to Regulation No. 43 in its original form under approval No. 002439. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 43."

The approval mark example for rigid plastic glazings other than windscreens, amend to read:

"Rigid plastic glazing [~~other than windscreens~~]



a = 8 mm min.

The above approval mark affixed to a rigid plastic glazing pane for forward facing panels shows that the component concerned has been approved in the Netherlands (E 4) pursuant to Regulation No. 43 under approval No. 002439. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 43 in its original form. The pane has been abrasion tested so that the outer surface meets the 2 per cent light scatter/1000 cycle requirement and the inner surface meets the 4 per cent light scatter/100 cycle requirement."

Add the following footnote

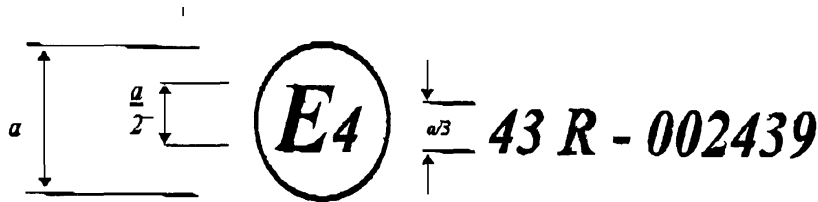
1/ In the case of plastic panes, additional symbols must be combined within the approval marking.

Insert a new annex 2B, to read:

"Annex 2B

ARRANGEMENT OF APPROVAL MARKS FOR VEHICLES

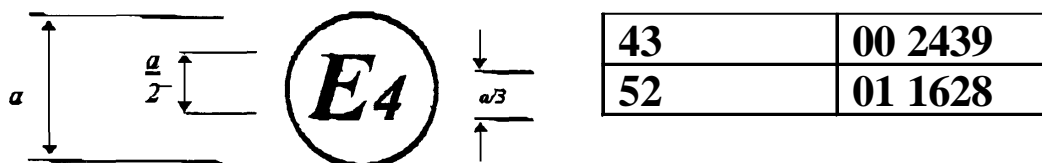
MODEL A (see paragraph 5.11. of this Regulation.)



$a = 8 \text{ mm min}$

The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to installation of glazing, been approved in the Netherlands (E4) pursuant to Regulation No 43. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 43 in its original form.

MODEL B (see paragraph 5.12. of this Regulation.)



$a = 8 \text{ mm min}$.

The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E4) pursuant to

Regulations Nos. 43 and 52 3/. The approval numbers indicate that, at the date when the respective approvals were given, Regulation 43 was in its original form and Regulation 52 included the 01 series of amendments.

3/ The second number is given only as an example."

Annex 3, paragraph 9.1.4., delete paragraphs 9.1.4.1. and 9.1.4.2. and amend to read

The regular light transmittance shall be measured according to paragraph 9.1.2. of this annex and the result shall be recorded. In the case of a windscreen, it shall not be less than 75 %.

Annexes 14 and 16,

Paragraphs 6.1.3. to 6.1.3.2., amend to read:

- "6.1.3. Interpretation of test results.
- 6.1.3.1. In the case of glazing of the class L, the abrasion test shall be considered to have given a satisfactory result if the total light scatter after abrasion does not exceed 2 per cent after 1000 cycles on the outer surface of the test sample and 4 per cent after 100 cycles on the inner surface of the test sample."
- 6.1.3.2. In the case of glazing of the class M, the abrasion test shall be considered to have given a satisfactory result if the total light scatter after abrasion does not exceed 10 per cent after 500 cycles on the outer surface of the test sample and 4 per cent after 100 cycles on the inner surface of the test sample."

Insert a new paragraph 6.1.3.3., to read:

6.1.3.3. For sun roofs, the abrasion test is not required

Insert a new annex 21, to read:

"Annex 21

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 O in order to ensure a high level of safety for the occupants and, in particular, to provide the driver 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 annex 7 to the consolidated resolution on the construction of vehicles 1;

- 2.3. "Special purpose vehicle", "motor caravan", armoured vehicle, ambulance, hearse, convertible, are respectively defined in annex 7 to the Consolidated Resolution on the Construction Of Vehicles 1/.
- 2.4. "Double-deck vehicle", is defined in paragraph 2.1.2. of Regulation No. 107.
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 operating conditions, they remain in position and continue to afford visibility and safety to the occupants of the vehicle;
- 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.
4. SPECIFIC PROVISIONS APPLICABLE TO VEHICLES OF THE CATEGORIES M AND N 1/
- 4.1. Windscreens
- 4.1.1. **The regular light transmittance shall not be less than 75%**
- 4.1.2. The windscreen must be type-approved for the vehicle type for which it is intended to be fitted;
- 4.1.3. The windscreen must 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].
- 4.2. Safety glazing other than windscreens and partition glazing
- 4.2.1. Safety glazing requisite for the driver's forwards field of vision
- 4.2.1.1. The safety glazing through which the driver's forwards field of vision, as defined in paragraph 2.18. of this Regulation, is obtained must be constituted of panes having a regular light transmittance of at least 70 per cent;
- 4.2.1.2. In the case of plastic panes, the safety glazing shall bear the additional symbol A/L or B/L, as defined in paragraph 5.5.5. **or 5.5.7.** of this Regulation;
- 4.2.2. Safety glazing requisite for the driver's indirect field of vision
- 4.2.2.1. The safety glazing, through which the driver's indirect field of vision, as defined in paragraph 2.18. of this regulation, is obtained only by means of the interior rear view mirror and one external rear view mirror, must have a regular light transmittance of at least 70 per cent;
-

1/ As defined in annex 7 to the Consolidated Resolution to Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2.

4.2.2.2. Subject to the provisions of paragraph 4.2.1.1., the safety glazing, through which the driver's indirect field of vision, as defined in paragraph 2.18 of this regulation, is obtained by means of the interior rear view mirror and two external rear view mirrors, must have a regular light transmittance of at least [30 per cent];

4.2.2.3. In the case of plastic panes, the safety glazing shall bear the additional symbol A/L or B/L, as defined in paragraph 5.5.5. or 5.5.7. of this regulation;

In the particular case of the rear glazing in the folding roof of convertible vehicles, the safety glazing may bear the additional symbol B/L or B/M in the case of rigid panes. However, flexible plastic panes may also be used.

4.2.3 Other safety glazing

4.2.3.1. The safety glazing not covered by paragraphs 4.2.1. and 4.2.2. of this annex shall have a regular light transmittance of at least [30 per cent];

4.2.3.2. **In the case of plastic panes**, they shall bear one of the additional symbols, as defined in paragraph 5.5.5., 5.5.6. or 5.5.7. of this Regulation.

However, when the vehicle is intended for conveying passengers, the additional symbol C/L and C/M are not allowed at locations where there is a risk of head impact.

4.2.4. Exemptions

By derogation to paragraphs 4.2.2. and 4.2.3. of this annex, the regular light transmittance has no minimum value for the following vehicles or glazing locations:

- (a) Ambulances;
- (b) Hearses;
- (c) Motor caravans;
- (d) All of the glazing of the upper deck in the case of a double-deck vehicle;
- (e) sun roofs and glazing located in the roof of a vehicle**

4.3. Particular requirements

4.3.1. Any external forward-facing glazing other than windscreens and any partition glazing must be constituted either by laminated glass or plastic panes bearing the additional symbol /A, as defined in paragraph 5.5.5. or 5.5.7. of this Regulation;

4.3.2. Any partition glazing located in the line of the indirect field of vision, as defined in paragraph 2.18. of this Regulation, shall meet the requirements for the regular light transmittance;

4.3.3. Where plastic partition panes are used, they shall bear **the additional symbol /L or /M**, as defined in paragraph 5.5.5. or 5.5.7. of this Regulation;

[4.3.4. Paragraph 4.3.1. is not applicable to vehicles having a maximum design speed lower than 40 km/h]"

RATIONALE OF THE AMENDMENTS SUGGESTED
BY THE UK & BELGIAN DELEGATIONS IN Rev 2

- General.

i) Most of the amendments suggested were originally proposed during the 79th session of the GRSG, by OICA (informal 15), the delegation of JAPAN (informal 4) and by CLEPA (informal 13)

ii) Amendments to the current text of 1999/12/Rev.1 appear in bold characters in Rev.2.

- Paragraph 5.5.2.

i) In the context of annex 3, the wording "*measured*" has been preferred to the one "*determined*"

ii) The sign % defines accurately the regular light transmittance symbol to be used, what is in line with the example of marking shown in Annex 2A

- Paragraph 5.5.7.

i) Additional symbols relating to the impact behavior of double glazed units are missing in the current Revision 1 - Amendment 1 to UNE/CE 43, dated 25 February 2000. They are re-introduced as a correction

ii) The text relating to the abrasion symbols has been redrafted on the basis of the one of the paragraph 5.5.5. and the reference to the relevant annex has been added.

iii) the wording "*panes*" replaces the wording "*windows*"

- Annex 2A

i) The wording "*safety glazing*" is preferred to the wording "*glass panes other than windscreens*", giving, as such, a broader scope to the marking; hence, plastic panes will also be covered by this paragraph.

ii) It is redundant to make a link to windscreens, hence the text may be simplified. Regarding rigid plastic glazing, an additional exchange of opinions is needed, therefore, brackets have been added.

iii) The addition of a footnote is needed to underline the fact that the markings V, A/L and the other ones must be combined in the case of plastic panes. Therefore, the addition of examples of markings will not be necessary.

- Paragraph 9.1.4. (Annex 3)

i) The current sub-paragraphs could interfere with the installation prescriptions of annex 21

and must be deleted.

ii) A simple reference to the collection of the test results is added.

- Paragraph 6.1.3.3. (Annexes 14 & 16)

i) As wished by the Industry and the delegation of Japan, sun roofs will be exempted from abrasion testing. The argument is that no field of vision has to be ensured by means of sun roofs; therefore, it is rational to exempt them from any abrasion provisions.

- Paragraph 3.1. (Annex 21)

i) See item relating to the annex 2A above for justification regarding the change in the wording. Moreover, windscreens and safety glazing have been combined in a single wording.

- Paragraph 4.1. (Annex 21)

i) A new item is added. It is preferable that all relevant prescriptions relating to the RLT would be gathered in annex 21

ii) Items 4.1.2. and 4.1.3. are inverted to respect a more logical sequence;

- Paragraphs 4.2.1.2., 4.2.2.3., 4.3.1. and 4.3.3. (Annex 21)

i) As stated above, the double glazed plastic panes must be covered by the newly reworked item 5.5.7. It is therefore necessary to add the relevant reference in those paragraphs

- Paragraph 4.2.2.3. – second indent (Annex 21)

i) The requirements have been strengthened for plastic rear glazing installed on convertibles. However, the additional symbol B has to be used as a minimum (additional symbol A may of course be allowed) to make an equivalency to the requirements for the rear glass panes, as requested by Industry.

ii) Specifically restricted to convertibles, it is also mentioned that the rear pane may be constituted by a flexible plastic pane.

- Paragraph 4.2.3.2. (Annex 21)

i) The addition of sun roofs in the list of exemptions makes possible the deletion of the previous paragraph 4.2.3.2.1.

ii) For vehicles as 4x4 with soft top, flexible plastic panes may be accepted behind the B pillar; relevant reference to 5.5.6. has therefore been added.

iii) A new item has been added to prevent the use of plastic panes marked /C at locations situated where the head of the occupants could hit the lateral glazing. At other locations, /C is allowed.

- Paragraph 4.2.4. (Annex 21)

Sun roofs and glazing located in the roof of the vehicles (coaches for example) may be exempted from the general provisions regarding the regular light transmittance.