

**Economic and Social Council**

Distr.: General
Date: 9 November 2020

Original: English

Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Noise and Tyres****Seventy-third session**

Geneva, 26–29 January 2021

Item 5 (b) of the provisional agenda

Tyres: UN Regulation No. 108 (Retreaded tyres for passenger cars and their trailers)

Proposal for amendments to UN Regulation No. 108**Submitted by the experts from the Bureau International Permanent des Associations de Vendeurs et Rechapeurs de Pneumatiques (BIPAVÉR)***

The text reproduced below has been prepared by the experts from BIPAVÉR in order to align the provisions for retreaded tyres with the proposals of France for UN Regulation No. 30 and of the European Tyre and Rim Technical Organization (ETRTO) for UN Regulation No. 117. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters. For better readability paragraphs with physical/mathematical terms or formulas are deleted and replaced completely.

* In accordance with the programme of work of the Inland Transport Committee for 2021 as outlined in proposed programme budget for 2021 (A/75/6 (Sect.20), para 20.51), 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.



I. Proposal

Paragraph 2.2.3., amend to read:

- "2.2.3. "Radial" or "radial-ply" describes tyre structure in which the ply cords extend to the beads and are laid substantially at 90° to the centre line of the tread, ~~the carcass being stabilized by an essentially inextensible circumferential belt in a zone outside the bead and the inextensible circumferential belt that stabilizes the carcass;~~"

Paragraph 2.49., amend to read:

- "2.49. "Standard Reference Test Tyre (~~SRTT~~)" or "SRTT" means a tyre that is produced, controlled and stored in accordance with the ~~American Society for Testing and Materials (ASTM)~~ standards **of ASTM International**:
- (a) E1136 – 17 for the size P195/75R14 and referred to as "SRTT14",
 - ~~(b) F2872 – 16 for the size 225/75R16C and referred to as "SRTT16C",~~
 - (b) **F2493-19 for the size P225/60R16 and referred to as "SRTT16",**

Paragraph 2.51., amend to read:

- "2.51. "Snow grip index ("SG")" means the ~~ratio between the snow grip performance of the a candidate tyre relative to and the performance of the standard reference test tyre applicable~~ **SRTT.**"

Paragraph 3.4., amend to read:

- "3.4. Following approval, the markings referred to in paragraph 5.8 and as shown in Annex 2 to this Regulation shall be **clearly legible, indelible and raised above or sunk below the tyre surface** and be affixed in the free space referred to in paragraph 3.3. This marking may be affixed to one sidewall only

Insert a new paragraph 3.4.1. to read:

- "**3.4.1. The markings shall be situated in the lower area of the tyre on at least one of its sidewalls, except for the inscriptions mentioned in paragraphs 3.2.1. and 3.2.2.**"

Insert a new paragraph 3.4.2., to read:

- "**3.4.2. In the case that the date of manufacture is not moulded, it shall be applied not later than 24 hours after the tyre is removed from the mould.**"

Paragraph 7.2., amend to read:

- "7.2. In order to be classified as a "snow tyre for use in severe snow conditions", the retreaded tyre to comply with this Regulation shall meet the performance requirements of paragraph 7.2.1. The retreaded tyre size shall meet these requirements based on a test method of Annex 9 by which:
- (a) The mean fully developed deceleration ("mfdd") in a braking test;
 - (b) Or alternatively an average traction force in a traction test;
 - (c) Or alternatively the average acceleration in an acceleration test **of the candidate tyre is compared to that of a Standard Reference Test Tyre (SRTT).**

The relative performance shall be indicated by a snow grip index."

Paragraph 7.2.1., amend to read:

- "7.2.1. For Class C1 tyres, the minimum snow grip index value, as calculated in the procedure described in Annex 9 and compared with the ~~respective Standard~~

Reference Test Tyre SRTT14 shall be as follows: compared with the SRTT shall be as follows:

Class of tyre	Snow grip index (brake on snow method) ^(a)		Snow grip index (spin traction method) ^(b)
	Ref. = C1 – SRTT 14, SRTT16	Ref. = C2 – SRTT 16C	Ref. = C1 – SRTT 14, SRTT16
C1	1.07	Ne	1.10

(a) See paragraph 3 of Annex 9 to this Regulation

(b) See paragraph 2 of Annex 9 to this Regulation"

Insert a new paragraph 12.4. to read:

12.4. Until 1 September 2024, Contracting Parties applying this Regulation may continue to grant type approvals according to the 02 series of amendments to this Regulation, based on snow performance test described in Annex 9 to this Regulation using SRTT14 as reference tyre.^(a)

Add a new footnote (a) to read:

" (a) SRTT14 will be available from the supplier until the end of October 2021."

Annex 9, paragraph 1.3. amend to read:

"1.3. "Traction test" means a series of a specified number of spin-traction test runs according to ASTM standard:

(a) F1805-06 in case SRTT14 is used as reference tyre or

(b) F1805-20 in case SRTT16 is used as reference tyre

of the same tyre repeated within a short time frame."

Annex 9,

Paragraphs 2.-2.2., amend to read:

"2. Spin traction method for Class C1 tyres

The test procedure of ASTM standard F1805-06 shall be used to assess snow performance through **traction performance index (TPI) spin traction values on medium pack packed snow (The snow compaction index measured with a CTI penetrometer1 shall be between 70 and 80).**"

2.1. The test course surface shall be composed of a medium **pack** snow surface, as characterized in table A2.1 of ASTM standard F1805-06 or ASTM F1805-20, as applicable."

2.2. The tyre load for testing shall be as per option 2 in paragraph 11.9.2. of ASTM standard F1805-06 or ASTM F1805-20, as applicable. **When the SRTT16 is used as reference tyre, it shall be tested with a load of 531 kg at an inflation pressure of 240 kPa (cold).**"

Insert a new paragraph 2.3. to read:

"2.3. The snow grip index (SG) of a candidate tyre Tn shall be computed as follows:

$$SG(T_n) = f \cdot \frac{TPI}{100}$$

where

(a) $f = 1.000$ when using SRTT14 as reference tyre per ASTM F1805-06, and

(b) $f = 0.987$ when using SRTT16 as reference tyre per ASTM F1805-20,

and TPI denotes the traction performance index as defined in ASTM F1805-06 or ASTM F1805-20, as applicable."

Insert a new paragraph 3.1.6. to read:

"3.1.6. In order to run this test, the Standard Reference Test Tyres (SRTT) as shown in the following table shall be used:

Class C1 tyres
SRTT14 or SRTT16

"

Paragraph 3.4.1.3., amend to read:

"3.4.1.3. The snow grip index (SG) of a candidate tyre Tn shall be computed as the quotient of from the arithmetic mean $\overline{a_{Tn}}$ of the mfd of the tyre Tn and the applicable weighted average wa_{SRTT} of the SRTT as shown in the table:

$$SG(Tn) = \frac{\overline{a_{Tn}}}{wa_{SRTT}}$$

$$SG(Tn) = f \cdot \frac{\overline{a_{Tn}}}{wa_{SRTT}}$$

where f is given in the following table

Tyre class	Reference tyre	Factor
C1	SRTT14	$f = 1.000$
	SRTT16	$f = 0.980$

"

Paragraph 3.4.3.1., amend to read:

"3.4.3.1 The snow grip index of the control tyre C relative to the SRTT (SG1) is given by

$$SG1 = SG(C) = f \cdot \frac{\overline{a_C}}{wa_{SRTT}}$$

where f is given in paragraph 3.4.1.3., and snow grip index of the candidate tyre Tn relative to the control tyre (SG2) is given by

$$SG2 = \frac{\overline{a_{Tn}}}{wa_C}$$

where wa_C is the applicable weighted average of the control tyre, shall be established using the procedure in paragraphs 3.1. to 3.4.2. above.

The snow grip index of the candidate tyre relative to the SRTT $SG(Tn)$ shall be the product of the two resulting snow grip indices that is given by

$$SG(Tn) = SG1 \cdot SG2."$$

Annex 9,

Appendix 2, Table 5, amend to read:

5. Test results: mean fully developed decelerations ($m \cdot s^{-2}$) / traction coefficient⁽³⁾

Run number	Specification	SRTT (1st test)	Candidate 1	Candidate 2	SRTT (2nd test)
1					
2					
3					
4					
5					

<i>Run number</i>	<i>Specification</i>	<i>SRTT (1st test)</i>	<i>Candidate 1</i>	<i>Candidate 2</i>	<i>SRTT (2nd test)</i>
6					
Mean					
Standard deviation					
Coefficient of variation	$CV_a \leq 6\%$				
Coefficient of Validation	$CVal_a(\text{SRTT}) \leq 5\%$				
SRTT weighted average					
Factor <i>f</i>					
Snow grip index		1.00			

II. Justification

This amendment to UN Regulation No. 108 is required in order to ensure that the test procedures for retreaded tyres are aligned with the amendment proposals in ECE/TRANS/WP.29/GRBP/2020/21 for UN Regulation No. 30 and in ECE/TRANS/WP.29/GRBP/2020/17 for UN Regulation No. 117.