

2 February 2021

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## Agreement

### **Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations\***

(Revision 3, including the amendments which entered into force on 14 September 2017)

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### **Addendum 107 – UN Regulation No. 108**

### **Amendment 5**

Supplement 5 to the original version of the Regulation – Date of entry into force:  
3 January 2021

### **Uniform provisions concerning the approval for the production of retreaded pneumatic tyres for motor vehicles and their trailers**

This document is meant purely as documentation tool. The authentic and legal binding text is:  
ECE/TRANS/WP.29/2020/73.



**UNITED NATIONS**

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\* Former titles of the Agreement:

Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958 (original version);  
Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, done at Geneva on 5 October 1995 (Revision 2).



Insert a new paragraph 2.36. to read:

"2.36. "Retreader" means the person or body who is responsible to the Type Approval Authority (TAA) for all aspects of the type-approval under this Regulation and for ensuring the conformity of production."

Paragraph 2.36. (former), renumber to 2.36.1.

Paragraph 2.49., amend to read:

"2.49. "Standard Reference Test Tyre (SRTT)" means a tyre that is produced, controlled and stored in accordance with the American Society for Testing and Materials (ASTM) standards E1136 – 17 for the size P195/75R14 and referred to as "SRTT14". "

Paragraph 4.3., amend to read:

"4.3. At the request of the Type Approval Authority, the Retreader shall submit samples of tyres for test or copies of test reports from the technical services, communicated as given in paragraph 12. of this Regulation."

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 (SRTT14).

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:

Class of tyre	Snow grip index (brake on snow method) (a)	Snow grip index (spin traction method) (b)
C1	1.07	1.10

Notes:

- (a) See paragraph 3. of Annex 9 to this Regulation
- (b) See paragraph 2. of Annex 9 to this Regulation"

#### Annex 9

Paragraph 3.4.1.1., amend to read:

"3.4.1.1. For each tyre and each braking test, the arithmetic mean  $\bar{a}$  and corrected sample standard deviation  $\sigma_a$  of the mfdd shall be computed and reported.

The coefficient of variation  $CV_a$  of a tyre braking test shall be computed as:

$$CV_a = 100\% \cdot \frac{\sigma_a}{\bar{a}}$$

with

$$\sigma_a = \sqrt{\frac{1}{N-1} \sum_{i=1}^N (a_i - \bar{a})^2}$$

"

Paragraph 3.4.1.2., amend to read:

"3.4.1.2. Weighted averages  $wa_{SRTT}$  of two successive tests of the SRTT14 shall be computed taking into account the number of candidate tyres in between:

In the case of the order of testing R1 – T – R2, the weighted average of the SRTT14 to be used in the comparison of the performance of the candidate tyre shall be taken to be:

$$wa_{SRTT} = \frac{1}{2}(\overline{a_{R1}} + \overline{a_{R2}})$$

Where:

$\overline{a_{Rn}}$  is the arithmetic mean of the mfdd for the n-th test of the SRTT14.

In the case of the order of testing R1 – T1 – T2 – R2, the weighted averages  $wa_{SRTT}$  of the SRTT14 to be used in the comparison of the performance of the candidate tyre shall be taken to be:

$wa_{SRTT} = \frac{2}{3}\overline{a_{R1}} + \frac{1}{3}\overline{a_{R2}}$  for comparison with the candidate tyre T1 and

$wa_{SRTT} = \frac{1}{3}\overline{a_{R1}} + \frac{2}{3}\overline{a_{R2}}$  for comparison with the candidate tyre T2."

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 the arithmetic mean  $\overline{a_{Tn}}$  of the mfdd of the tyre Tn and the applicable weighted average  $wa_{SRTT}$  of the SRTT:

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

"

Paragraph 3.4.2., amend to read:

"3.4.2. Statistical validations

The sets of repeats of measured or computed mfdd for each tyre should be examined for normality, drift, eventual outliers.

The consistency of the arithmetic means  $\bar{a}$  and corrected sample standard deviations  $\sigma_a$  of successive braking tests of SRTT14 should be examined.

In addition and in order to take in account possible test evolution, the coefficient of validation  $CVal_a(SRTT)$  is calculated on the basis of the average values of any two consecutive groups of the minimum 6 runs of the Standard Reference Test Tyre according to

$$CVal_a(SRTT) = 100\% \times \left| \frac{\overline{a_{R2}} - \overline{a_{R1}}}{\overline{a_{R1}}} \right|$$

The coefficient of validation  $CVal_a(SRTT)$  shall not differ by more than 5 per cent.

The coefficient of variation  $CV_a$ , as defined in paragraph 3.1.1. of this annex, of any braking test shall be less than 6 per cent.

If those conditions are not met, tests shall be performed again after re-grooming the test course."

Appendix 2, amend to read:

"Part 1 – Report

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2. Name and address of the Retreader:

...

4. Brand name and trade description:

...

7. Snow grip index relative to SRTT according to paragraph 7.2.1.

...

Part 2 – Test data

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4. Test tyre details and data:

	<i>SRTT (1<sup>st</sup> test)</i>	<i>Candidate 1</i>	<i>Candidate 2</i>	<i>SRTT (2<sup>nd</sup> test)</i>
Brand name				
Trade Description/ commercial name				
Tyre size designation				
Service description				
Test rim width code				
Reference (test) inflation pressure (kPa)				
Tyre loads F/R (kg)				
Tyre Loads F/R (% of load associated to LI)				
Tyre pressure F/R(kPa)				

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

<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>
1					
2					
3					
4					
5					
6					
Mean					
Standard deviation					
Coefficient of variation	$CV_a \leq 6 \%$				
Coefficient of validation	$CVal_a(SRTT) \leq 5 \%$				
SRTT weighted average					
Snow grip index		1.00			

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