Proposal for amendments to Regulation No. 117

Submitted by the experts from Japan

The text reproduced below was prepared by the experts from Japan in order to correct inconsistencies in time measurement accuracy in annex 6. This document is based on ECE/TRANS/WP.29/GRB/2014/8. The modifications to the existing text of the Regulation are shown in bold for new or strikethrough for deleted characters.

I. Proposal

Annex 6, Appendix 1

Paragraph 4, amend to read:

"4. Control accuracy

…

(d) Time: ~~±0.5 ms~~

   (i) **±0.02 s for the time increments specified in Annex 6, paragraph 3.5.(b) for the data acquisition in the deceleration method in Δω/Δt form;**

   (ii) ~~(i)~~ ±0.2 per cent for the time increments specified in Annex 6, paragraph 3.5.(a) for the data acquisition in the deceleration method~~, both~~ in ~~Δω/Δt or~~ dω/dt form;

   (iii) ~~(ii)~~ ±5 per cent for the other time durations specified in Annex 6. "

Annex 6, Appendix 1, Paragraph 5, amend to read:

"5.   Instrumentation accuracy

The instrumentation used for readout and recording of test data shall be accurate within the tolerances stated below:

Parameter	Load Index ≤ 121	Load Index > 121
Tyre load	±10 N or ±0.5 % [a]	±30 N or ±0.5 % [a]
Inflation pressure	±1 kPa	±1.5 kPa
Spindle force	±0.5 N or ±0.5 % [a]	±1.0 N or ±0.5 % [a]
Torque input	±0.5 Nm or ±0.5 % [a]	±1.0 Nm or ±0.5 % [a]
Distance	±1 mm	±1 mm
Electrical power	±10 W	±20 W
Temperature	±0.2 °C	
Surface speed	±0.1 km/h	
Time	**±0.01 s -** ± 0.1 % - ± 10 s[b]	
Angular velocity	±0.1 %	

[a]   Whichever is greater.

[b]   **±0.01 s for the time increments specified in Annex 6, paragraph 3.5.(b) for the data acquisition in the deceleration method in Δω/Δt form**
±0.1 per cent for the time increments specified in Annex 6, paragraph 3.5.(a) for the data acquisition in the deceleration method~~, both~~ in ~~Δω/Δt or~~ dω/dt form
± 10 sec for the other time durations specified in Annex 6. **".**

II.   Justification

- As a result of researching the specification of rolling resistance machine for deceleration method in Japan, it was confirmed a few machines are out of the time accuracy specified in GRB/2014/8.

- Those machines satisfy the required time accuracy (Control accuracy : ±0.02 s, Instrumentation accuracy : ±0.01 s) in ISO 28580 and they are no problem for the measurement repeatability. So it should be specified by the different time accuracy from dω/dt form (Control accuracy : ±0.2 %, Instrumentation accuracy : ±0.1 %).

- The time accuracy for Δω/Δt form based on ISO 28580 is determined by time duration Δt, so the unit is specified in second. But the unit for dω/dt form should be specified in per cent, because the accuracy is depend on the time increment t_z of one revolution and it is varied especially by tire radius.

- Basically, any amendment related to the test conditions of rolling resistance measurement should be discussed in ISO stage with technical approach.