

WLTP-24-04e

Drafting Coordinator Report

IWG # 24

Tokyo, September 2018

WLTP GTR

These slides show the proposed changes to Amendment 4 of GTR 15 since the June 2018 IWG #23 meeting in Geneva, including proposals made during the August 29, 2018 New Issues telco and the August 30, 2018 Drafting Subgroup telco.

WLTP GTR: II. Text of the global technical regulation,

3. Definitions

- Definitions of coastdown-related terms were requested.
- In a Drafting Subgroup telco on August 30, C. Lueginger proposed a list of drafting-related terms, including some new ones, which could lead to a set of such terms. Drafting Co. offered to define the following terms:
 1. coasting down
 2. coastdown method
 3. coastdown run
 4. coastdown run pair
 5. split run method
 6. split run
 7. split run pair
 8. split point
- See the next slide for the proposed definitions.

Term	Proposed definition
Coasting down	means the act of decelerating a vehicle [optional text: from a higher to a lower speed] free of interaction with any propulsion unit.
Coastdown method	means a procedure consisting of vehicle warm-up, coasting the vehicle down, collecting, processing and correcting test data to determine the final road load coefficients f_0 , f_1 and f_2 .
Coastdown run	means coasting a vehicle down from the highest reference speed of 130 km/h to the lowest reference speed of 20 km/h in one of two opposite directions and obtaining a single set of data.
Coastdown run pair	means two [corresponding] coastdown runs performed in opposite directions.
Split run method	means coasting down where a coastdown run from 130 km/h to 20 km/h in one single data set is not possible and where the run is split into two or more split runs.
Split run	means a speed segment from a higher speed to a lower speed (e.g. 130 km/h to 80 km/h) in one of two directions.
Split run pair	means two split runs performed in opposite directions.
Split point	means the speed at which a split run either starts or ends.

WLTP GTR: II. Text of the global technical regulation,

3. Definitions

- GTR 15 also uses the terms *coastdown test* and *coastdown procedure*. The use of all coastdown-related terms in GTR 15 must be cross-checked.
- Paragraphs 4.3.1.3.4. and 4.3.2.4.3. in Annex 4 already define what a split run is. This must be reviewed and accordingly modified.
- The start of both paragraphs 4.3.1.3.4. and 4.3.2.4.3. reads as follows:

"Although it is recommended that each coastdown run be performed without interruption, split runs may be performed if data cannot be collected in a single run for all the reference speed points."

Recommendation:

"Although it is recommended that each coastdown run be performed without interruption, split runs may be performed." ~~if data cannot be collected in a single run for all the reference speed points."~~

WLTP GTR: II. Text of the global technical regulation, 3.5.3. Definitions

- The definition of a *category 1-1 vehicle* has been modified to align it with Special Resolution No. 1.
- It should read that "the vehicle **may not** have standing passengers" rather than "the vehicle **may** have standing passengers".
- This was accepted during the August 30, 2018 Drafting Subgroup telco.

WLTP GTR: Annex 4, paragraph 4.2.1.

- Text has been added to prevent that the test vehicle does not have such items as clapped wing mirrors, taped over body gaps, etc. The test vehicle should represent a vehicle in the same condition as it would be used on public roads.
- The text was proposed during the August 30, 2018 Drafting Subgroup telco.

4.2.1. Test vehicle

Each test vehicle shall conform in all its components with the production series, or, if the vehicle is different from the production vehicle, a full description shall be recorded. **The configuration of the test vehicle shall be representative of its use under normal driving conditions.**

WLTP GTR: Annex 4, paragraph 4.3.1.4.2.

- An error in the equation for statistical precision was identified and corrected. The original equation did not have Δt_{pj} under the square root sign.

These measurements shall be carried out in opposite directions until a minimum of three pairs of measurements have been obtained that satisfy the statistical precision p_j defined in the following equation:

$$p_j = \frac{h \times \sigma_j}{\sqrt{n \times \Delta t_{pj} + n \times \Delta t_{pj}}} \leq 0.03$$

WLTP GTR: Annex 4, paragraph 6.4.1.

- The term *precision* has been replaced with *repeatability*.
- This was accepted during the New Issues telco on August 29, 2018.

Wind tunnel criteria

The wind tunnel design, test methods and the corrections shall provide a value of $(C_D \times A_f)$ representative of the on-road $(C_D \times A_f)$ value and with a ~~precision~~ repeatability of $\pm 0.015 \text{ m}^2$.

WLTP GTR: Annex 6, paragraph 2.8.1.

- It was decided during the New Issues telco in July 2018 that paragraph 2.8.1. relating to engine oil and/or coolant temperature will remain unchanged.

2.8.1. The test cell temperature at the start of the test shall be $23\text{ °C} \pm 3\text{ °C}$. The engine oil temperature and coolant temperature, if any, shall be within $\pm 2\text{ °C}$ of the set point of 23 °C .

WLTP GTR: Annex 6, Appendix 1, paragraph 1.3

- The original text implied that testing of vehicles with periodically regenerating systems did not apply to all emissions.
- The following text was approved during the Drafting Subgroup telco on August 30, 2018:

1.3. The provisions of this appendix shall ~~not apply for the purposes of PM measurements only and not to~~ PN ~~measurementsemissions~~.

or, without track changes:

1.3. The provisions of this appendix shall not apply to PN emissions.

WLTP GTR: Annex 6, Appendix 1, paragraph 3.3.

- The original text erroneously referred implied that Ki factors can be multiplicative or additive. This error was a drafting oversight and the text has been modified accordingly and approved during the Drafting Subgroup telco on August 30, 2018:

B.3. | Ki factors ~~and Ki offsets (multiplicative or additive)~~ shall be rounded to four decimal places. ~~For Ki offsets, the rounding shall be~~ based on the physical unit of the emission standard value.

Or, without track changes:

3.3. | Ki factors and Ki offsets shall be rounded to four decimal places. For Ki offsets, the rounding shall be based on the physical unit of the emission standard value|

WLTP GTR: Annex 7, Table A7/2 (Compressibility factor Z)

- Just wrong „unit“

The compressibility factor, Z, shall be obtained from the following table:

Table A7/2

Compressibility factor Z

		<u>T (K)</u>									
		5	100	200	300	400	500	600	700	800	900
<u>p (bar)</u>	33	0.859	1.051	1.885	2.648	3.365	4.051	4.712	5.352	5.973	6.576
	53	0.965	0.922	1.416	1.891	2.338	2.765	3.174	3.57	3.954	4.329
	73	0.989	0.991	1.278	1.604	1.923	2.229	2.525	2.810	3.088	3.358
	93	0.997	1.042	1.233	1.470	1.711	1.947	2.177	2.400	2.617	2.829
	113	1.000	1.066	1.213	1.395	1.586	1.776	1.963	2.146	2.324	2.498
	133	1.002	1.076	1.199	1.347	1.504	1.662	1.819	1.973	2.124	2.271
	153	1.003	1.079	1.187	1.312	1.445	1.580	1.715	1.848	1.979	2.107

WLTP GTR

- The GTR including its track changes is uploaded on a regular basis to the UNECE server under:

<https://wiki.unece.org/display/trans/Latest+GTR+15>

2018 Calendar [a calendar for 2019 will be prepared]

- The **2018** calendar is available for your reference under:

<https://wiki.unece.org/display/trans/WLTP+2018+calendar>

- Should you plan any WLTP-related event for 2018 or 2019 , please send a mail with (a) what the event is (f2f meeting, web), (b) when it is to take place, (c) starting and finishing time. The calendar will be updated and uploaded as soon as possible.

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