

## WLTP GTR#15 Amend#6

Overview square brackets SG EV needs to provide input





# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Update/amendment of the wording of nominal voltage

### Intention of proposal:

- Nominal voltage is a fixed voltage value which is not taking care of the voltage decrease of a REESS
- For PEV test procedures, nominal voltage is not allowed at all; but still for the CD-test of an OVC-HEV
- Proposal limits the application of nominal voltage to the CS-conditions of an OVC-HEV and to the low voltage REESSs of PEVs and OVC-HEVs under CD conditions; high voltage REESS under CD condition are not allowed to use nominal voltage

### Current status:

- EC supports the proposal
- JPN in general supports the proposal but addressed some concerns: e.g. background of 60V threshold unclear .

### Discussion basis:

- Current text in square brackets → working document: Annex 8, Appendix 3, paragraph 3.2.
- Updated Proposal ACEA EV:  
[200313 ACEA TF EV proposal nominal voltage with comment and changes.docx](#)  
[200313 ACEA EV proposal update Nominal Voltage application.pptx](#)
- Proposal JPN:  
[200315 JPN input REESS voltage measurement.docx](#)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Proposed update in the context of the CO<sub>2</sub> correction factor application of HEVs

### Intention of the proposal:

- Experiences in the already performed type approval tests showed that in similar HEV powertrains, the factor is almost identical
- Proposal 1: For NOVC-HEVs, proposal is to give the manufacturer the option to use a worst case approach based on the generic approach from pure ICE vehicles
- Proposal 2: In addition for (N)OVC-HEVs, manufacturer should be able to group several interpolation families into one K<sub>CO2</sub> family
- These proposals will reduce additional (and unnecessary) testing without any additional value

### Current status:

- Intention of the proposal is understood and supported but proposal needs further scrutiny
- JPN and EC agreed to put the topic in square brackets to the working document of GTR#15 Amd#6

### Discussion basis:

K<sub>CO2</sub> correction factor family for (N)OVC-HEVs → Working Document: main body, para. 5.15. and Annex 8, Appendix 2, para. 2.1.

Generic approach for NOVC-HEVs → Working document: Annex 8, Appendix 2a

### Supporting documents from ACEA EV:

[200308 Updated proposal CO2 FC correction ACEA EV rev2.pdf](#); [200310 Generator Efficiency Example BRS Broschuere RZ en.pdf](#)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Declared number of cycles in CD mode for OVC-HEV

### Intention of the proposal:

- In the case of “number of tests”, more than one CD test need to be performed
- It is not clear what need to be done in the case of a borderline OVC-HEV which reaches in one test the expected numbers of CD cycles but in another test one cycle more or one cycle less than the expected number of CD cycles
- Proposal is providing a solution how to deal with this situation

### Current status:

- During the meeting, a specific use case has been introduced and explained (number of CD cycles less than the expected number)
- Based on this use case, EC and JPN agreed on putting the topic in square brackets for GTR#15 Amd#6 (proposal to include the wording from ACEA EV as placeholder in Amd#6)

### Discussion basis:

Working document: Annex 6, paragraph 1.2.3.4., 1.2.3.5. and 1.2.3.6. (ACEA EV text proposal)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Located in Working document	Status
1	Low Temp family definition for pure ICE, (N)OVC-HEVs (does not cover vehicles selection)	Main Body, Paragraph 5.14.1.	
2	Low Temp family definition for PEVs (covers also vehicle selection)	Main Body, Paragraph 5.14.2.	
3	table A13/1	Annex 13, Paragraph 1.1.	
4	in paragraph 1: “[Annex 6 and Annex 7]”	Annex 13, Sub-Annex 1, paragraph 1.	
5	in Paragraph 1.4.1.2.: “[may/shall]”	Annex 13, Sub-Annex 1, paragraph 1.4.1.2.	
6	in paragraph 3.2.2.6.: “figure S-A1/1: [...]”	Annex 13, Sub-Annex 1, paragraph 3.2.2.6.	
7	in Paragraph 3.2.4.3.1.: “[1]” hour after complete of REESS charge	Annex 13, Sub-Annex 1, Paragraph 3.2.4.3.1.	
8	in Paragraph 3.2.4.3.1.: “[each followed by a soak period of no more than 30 minutes]”		
9	in Paragraph 3.2.4.3.1.: expand the “[1]” hour requirement		



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Located in Working document	Status
10	Complete paragraph in “[...]”	Annex 13, Sub-Annex 1, Paragraph 3.2.4.3.2.	
11	“[0.06]”	Annex 13, Sub-Annex 1, Paragraph 3.2.4.5.2.	
12	“[E <sub>cycle</sub> ]”		
13	“[The constant speed segment shall be excluded for vehicles belonging to the same UBE family]”	Annex 13, Sub-Annex 1, Paragraph 3.4.3.3.2.:	
14	Complete paragraph in “[...]” (Parameters for NOVC-HEVs, OVC-HEVs and PEVs)	Annex 13, Sub-Annex 1, Paragraph 4.1.	
15	[PER calculation : for vehicles belonging to the same UBE family]	Annex 13, Sub-Annex 1, Paragraph 4.2.4.	
16	[EC calculation for vehicles belonging to the same UBE family]	Annex 13, Sub-Annex 1, Paragraph 4.3.5.	
17	[For results after 4 phases; The considered periods shall be the low phase, medium phase, high phase, extra high phase, the applicable WLTP city test cycle and the applicable WLTP test cycle. For results after 3 phases; The considered periods shall be the low phase, medium phase, high phase and the applicable WLTP test cycle.]	Annex 13, Sub-Annex 1, Paragraph 4.4.:	



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Located in Working document	Status
18	“[Placeholder]” for ratio calculation of PEV and OVC-HEVs	Annex 13, Sub-Annex 1, after paragraph 4.4. → new paragraph 4.5.?	
19	“[REESS state of charge profile]”	Annex 13, Sub-Annex 1, Appendix 1	
20	“[Placeholders]” for HVAC system settings in the context of the vehicle preparation <ul style="list-style-type: none"> <li>- During SoC setting</li> <li>- First soak (“Soak before preconditioning (precond-soak)”)</li> <li>- Preconditioning</li> <li>- Second soak (“Soak after preconditioning and before test (test-soak)”)</li> </ul>	Annex 13, Sub-Annex 1, Appendix 2: <ul style="list-style-type: none"> <li>- paragraph 2.1./3.1./4.1.</li> <li>- paragraph 2.2./3.2./4.2.</li> <li>- paragraph 2.4./3.4./4.4.</li> <li>- paragraph 2.6./3.6./4.6.</li> </ul>	
21	“[(First) Soak before preconditioning OVC-HEV]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.2.1.1. and 2.2.1.2	
22	no longer than “[20]” minutes	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.3.	



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Located in Working document	Status
23	“[The engine oil temperature and coolant temperature, if any, shall be within $\pm 2$ °C of the set point -7 °C.]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.4.1.	
24	“[At the end of preconditioning, the REEC <sub>i</sub> value defined in paragraph 3.2.4.5.2. of Annex 8 shall be below 0.06. This criteria applies to only discharge side.]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.4.2.	
25	“[During soak, the REESS shall be charged using the normal charging procedure as defined in paragraph 5 of this appendix. Soak shall continue until the end-of-charge criterion, as defined in paragraph 5.2. of this appendix is reached. The soak time shall be reported.]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.6.3.3.	
26	Complete paragraph in “[...]” (transfer from soak to CS Type 6 testing)	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.7.1.	
27	Almost complete paragraph in “[...]” (transfer from soak to CD Type 6 testing)	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 2.7.2.	



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Locat. in Working document	Status
28	“[This time shall be referred as $t_{\text{precond-soak-PEV}}$ and shall be recorded]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 3.2.2.	
29	“[ $\pm 5$ °C]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 3.4.1.	
30	“[50]” km		
31	“[If the cumulative distance exceeds [50] km, the accelerator control shall be deactivated, and the vehicle shall be braked to a standstill within 60 seconds. The vehicle shall exit the test cell and the state of charge of the REESS shall be set as per paragraph 3.1 followed by soaking as per paragraph 3.2 of this annex]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 3.4.2.	
32	After the vehicle has completed preconditioning and is placed in the soak area at the temperature of $-7$ °C ( $\pm 3$ °C), the vehicle shall soak for a minimum of “[12]” hours and maximum 36 hours. “[This time shall be referred as $t_{\text{soak-PEV}}$ and shall be recorded]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 3.6.1.	
33	“[During soak, the REESS shall be charged using the normal charging procedure as defined in paragraph 5 of this appendix. Soak shall continue until the end-of-charge criterion, as defined in paragraph 5.2. of this appendix is reached. The soak time shall be reported.]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 3.6.3.	



# Square bracket topic in WD of WLTP GTR#15 Amend#6

## Low Temp Test Procedure

No.	Topic	Locat. in Working document	Status
34	Complete paragraph in “[...]” (soak before preconditioning for NOVC-HEVs)	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 4.2.	
35	At the start of the preconditioning test, the test cell shall have a temperature set point of -7 °C and the tolerance of the actual value shall be within $\pm 3$ °C. “[The engine oil temperature and coolant temperature, if any, shall be within $\pm 2$ °C of the set point -7°C]”. During preconditioning, the tolerance of the actual value shall be within $\pm 5$ °C.	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 4.4.2.	
36	“[Vehicles with time of day delayed charging, shall enter the soak area and shall be connected to the mains without unjustified delay. The delayed charging setting must only occur once and may not be modified further during the soak period.]”	Annex 13, Sub-Annex 1, Appendix 2, Paragraph 5.1.	

---

BACK UP



## Possible input for WLTP GTR#15 Amend#6

Update/amendment to include extrapolation for PEVs, define interpolation range for PEVs

### Intention of the proposal:

- No extrapolation defined for PEVs, no interpolation range defined for PEVs
- Proposals adds this option and shall define value for interpolation and extrapolation range

### Status after IWG IMD, Brussels, February 20<sup>th</sup>:

- Support on the concept but still discussion required on the values “minimum interpolation range”, “maximum interpolation range”, “maximum allowed extrapolation range”; also on the question if the vehicle M concept shall also be applicable for PEVs
- JPN and EC position has not changed since January where they stated that without concrete proposal and justification
- As position has not changed : Shall not go into GT#15 Amd#6 and shall be further postponed (**unless further justification provided**)

Updated version and draft text included in document: [191016 Extrapolation OVC-HEV interpolation extrapolation PEV.docx](#)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



# Possible input for WLTP GTR#15 Amend#6

## Update/amendment to extrapolation for OVC-HEVs

### Intention of the proposal:

- Extrapolation is defined for OVC-HEVs but to avoid mistakes in the extrapolation two additional aspects need to be considered, to ensure that the extrapolation is right and correct
  - By extrapolation below VL, the amount of CD-cycles need to be identical between VL and the extrapolated vehicle below VL; if VL was not able to drive CD in pure electric operation, also no pure electric operation for the extrapolated vehicle below VL allowed
  - By extrapolation above VH, the amount of CD-cycles need to be identical between VH and the extrapolated vehicle above VH; if VH was able to drive CD in pure electric operation until  $SoC_{min}$ , also pure electric operation for the extrapolated vehicle above VH required

### Status after IWG IMD, Brussels, February 20<sup>th</sup>:

- JPN and EC position has not changed since January where they stated that this is not necessary to include now, can be done later
- As position has not changed : Shall not go into GT#15 Amd#6 and shall be further postponed

Latest version: [190930 WLTP-GTR-Proposals EV extrapolation OVC-HEVs.pdf](#)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



# Possible input for WLTP GTR#15 Amend#6

## Alternative option for COP testing of PEVs

### Intention of proposal:

- JAMA is proposing an alternative method (option) to the existing COP procedure (first cycle of the PEV test procedure for DC energy consumption confirmation) as in current procedure, vehicle is coming out of the test with a high SoC because procedure is starting with a fully charged battery and only one cycle is being driven
- If vehicle is shipped by plane, there is a requirement to have a maximum SoC of 30% which means that for those vehicles, the manufacturer needs to discharge the REESS down to this level
- Alternative procedure is following the same methodology like the existing procedure but starting with lower SoC and therefore avoiding this discharge of the REESS after the first cycle

### Status after IWG IMD, Brussels, February 20<sup>th</sup>:

- Topic can be skipped and will be further postponed

Presentation describing proposal: [PEV Test Procedure for COP\\_JAMA.pdf](#)

### Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6
- Shall not go into GTR#15 Amd#6, topic shall be further postponed