
WLTP GTR#15 Amend#6

Overview square brackets SG EV needs to provide input

Amendment to calculation chapter 4 in Annex 8

Text proposals EC on soak before precon and chassis dyno coefficients

Status: 28.05.2020 (after SG EV on May 28th)





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

Final status:

- It was agreed by SG EV during the meeting on April 8th to follow JPN proposal (with 60V threshold)
- Only remark: Last line in Table A8.App3/1 („break-off criteria judgment...“) shall be deleted from the proposal

Discussion basis:

- Current text in square brackets → working document: Annex 8, Appendix 3, paragraph 3.2.
- Proposal JPN: [200315_JPN_input_REESS_voltage_measurement.docx](#) (complete paragraph 3)

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

Link the latest version of the informal document updating the working document (GTR#15Amd#6):

<https://wiki.unece.org/display/trans/GTR15+Amnd+6+Drafting>



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

Generic approach in the context of the CO₂ correction factor application of NOVC-HEVs

Intention of the proposal:

- Proposal is to give the manufacturer the option to use a worst case approach based on the generic approach from pure ICE vehicles
- These proposals will reduce unnecessary testing without any additional value

Final status:

- JPN and EC support the proposal → support for 3 phase WLTP test and 3 phase WLTP test
- Proposal as under the link below will go into GTR#15 Amend#6
- Proposal need to be revisited before going into UNR WLTP

Final text proposal as basis for drafting (after SG EV on May 28th):

[200512 Draft text of Annex 8 Appendix 2a after SG EV on May 28th.docx](#)

Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6 (but further scrutiny before going into UNR)
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



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

KCO2 correction factor family – applicable for OVC-HEVs and NOVC-HEVs

Intention of the proposal:

- Manufacturer should be able to group several interpolation families into one K_{CO_2} family
- This proposals will reduce unnecessary testing without any additional value

Final status:

- JPN cannot support the proposal but can accept to apply it to 4 phase WLTP test
- EC supports the concept of having the same family criteria as the CoP family
- Proposal will be applied to 4 phase WLTP test only (need to be considered during drafting)
- During drafting, it need to be discussed which proposed text to follow (ACEA TF EV proposal or Nick-san proposed amendments)

Final text proposal as basis for drafting (after SG EV on May 28th):

[200514 Draft text proposal KCO2 correction factor family after SG EV on May 28th.docx](#)

→ For 4 phase WLTP test only

Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6 (but for 4 phase WLTP test only)
- Shall not go into GTR#15 Amd#6, topic shall be further postponed



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

Expected number of cycles in CD mode for OVC-HEV

Intention of the proposal:

- 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

Final status:

- Necessity seen to take action but no urgent need; at the current stage, this issue can be negotiated with technical service
- EC and JPN agreed to delete the text within the square brackets and to remain with the UNR WLTP text
- Topics can be revisited at a later stage, e.g. in the preparation of the UNR WLTP revision

Final text proposal as basis for drafting (after SG EV on May 28th):

[200520 - GTR15 Amnd 6 - number of CD cycles after SG EV on May 28th.docx](#)

→ Proposal contains the deletion of the square bracket text

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 (text in square brackets to be deleted)



Drafting topics to be addressed in WD of WLTP GTR#15 Amend#6

Amendments in calculations of Annex 8 Chapter 4

Background of the proposal:

- Clarification: Add wording “arithmetic” in context of ‘average’ to make clear that the arithmetic average is meant
- Clarification: Adding “and charge-depleting fuel efficiency” in §4.2.2. headline; adding “for OVC-HEVs” in first sentence of §4.2.3.
- Guidance in equation where a division by “zero” is possible: Add wording in case of OVC-HEV equations where a division by “zero” would be possible in case of a pure electric driven CD test or at least one cycle in the CD test (FE_{CD} , $FC_{weighted}$, EAER, $EAER_p$)

Final status:

- As the intention of the proposal is to clarify some points but no urgency behind
- EC and JPN stated that these changes can be introduced at a later stage (e.g. when discussing the UNR WLTP revision)

Latest text proposal (will not be considered during drafting):

[200514 Amendments in calculation GTR15 Annex 8 Chapter 4 \(rev1\).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

Link the latest version of the informal document updating the working document (GTR#15Amd#6):

<https://wiki.unece.org/display/trans/GTR15+Amnd+6+Drafting>



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

Low Temp Test Procedure

Presentation EV family concept:

ACEA EV: [200515 Update EV Low Temp Family explanation slides after SG EV.pptx](#)

JPN: [PEV low temp Test and Calculation scheme.pdf](#)

Proposal for (N)OVC-HEVs on Low Temp Family Concept (reflecting feedback received) → Document 3

[200520 Type 6 ICE NOVC OVC-HEV test vehicle selection proposal after SG EV on May 28th.docx](#)

Further comments on this proposal from OICA (not discussed in SG EV but within ACEA EV feedback):

[200520 Type 6 ICE NOVC OVC-HEV test vehicle selection proposal additional OICA comments.docx](#)

Proposal for PEV family criteria:

[200528 Low Temp PEV family criteria after SG EV on May 28th.docx](#)

Proposal value determination and calculation for PEVs and HEVs:

[200518 Low Temp EV family calculation draft text proposal basis after SG EV on May 28th.docx](#)

→ Nick-san will prepare based on the agreed proceeding during the SG EV meeting on May 28th a draft text proposal

→ Proposal will take the documents above as basis (preparation of Document 2 as input for drafting)

→ Family concept for EVs might need to be adjusted with findings out of the validation exercise

Closed EV LT topics → draft text proposals (word document) – for further commenting:

[200514 Proposed draft text for EV LT # \(except family related topics\).docx](#) → Document 1 as input for drafting



Drafting topics to be addressed in WD of WLTP GTR#15 Amend#6

Text proposal EC: soak before preconditioning/chassis dynamometer coefficients

Background of the text proposals:

- Discussions in Low Temp TF as well as SG EV on these topics

Final status:

- Soak before preconditioning: SG EV supports the text proposal provided by EC; proposal is not only covering pure ICE but also NOVC-HEVs and CS-testing of OVC-HEVs; proposal still need to be shared within Low Temp TF but all stakeholder had been already involved in the development of this updated text
- Chassis dynamometer coefficients: Text proposal from EC has been slightly modified during the meeting; updated proposal still need to be shared within Low Temp TF but will be done by Low Temp TF leader

Final text proposal which will be shared with Low Temp TF and will be used as basis for drafting (after SG EV on May 28th):

[200528 text proposals for GTR15 Amd6 EC after SG EV on May 28th.docx](#)

Conclusion within WLTP SG EV:

- Shall go into GTR#15 Amd#6 (but final confirmation by Low Temp TF)
- Shall not go into GTR#15 Amd#6, topic shall be further postponed

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 20th:

- 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 20th:

- 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 20th:

- 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