

37 th WLTP Sub Group EV Meeting	
Date	4 March 2020 / retake: 5 March 2020 during LowT TF web-audio
Time	9:00 to 12:00 CET / 11:10 to 12:00 CET
Title	37 th WLTP Sub Group EV Meeting – Minutes
Location	Web-Audio

0	Revision & adoption of meeting minutes & agenda
	<ul style="list-style-type: none"> - Meeting minutes of face-to-face meeting on 21 February 2020 01 WLTP SG EV & LowT TF Minutes 21 February 2020 rev2.pdf → adopted - Adoption of this agenda 00 WLTP SG EV Agenda 4 March 2020.pdf
1	WLTP Low Temp Test Procedure Development for EVs: conclusion on open topics
	<p>Reminder: timeline for defining Low Temp test procedures and family concepts for NOVC-HEV, OVC-HEV and PEV (see slide 3): 200127 SG EV Low Temp Test Procedure for EV - Schedule.pdf</p> <p>Peter Bonsack (chair) reminded the group about the schedule to meet the working document deadline for June 2020 GRPE, in order to deliver on a WLTP Low Temp test procedure for electrified vehicles.</p> <p><u>Conclusion of open topics for Low Temp test procedure(s) for EVs</u></p> <p><i>Overview presentation of remaining open topics on test procedures to be agreed upon</i> Open topics Low Temp Test Procedure after February IWG IMD and SG EV rev4.pdf</p> <p style="text-align: center;">--- Discussion 4 March 2020 ---</p> <p>The discussion was started with abovementioned overview presentation and was further supported via an input discussion paper provided by JPN (JPN Input Discussion Paper Open topics Low Temp Test Procedure after February IWG IMD and SG EV rev3.pptx) as well as additional comments made by OICA (Open topics Low Temp Test Procedure after February IWG IMD and SG EV rev4 OICA comment.pptx). With this as well as the inputs and comments provided by the EC's representatives, the overview presentation was modified live during the meeting (Open topics Low Temp Test Procedure after February IWG IMD and SG EV rev5.pptx), reflecting the discussion, conclusions and agreements.</p> <p style="text-align: center;">---</p> <p>→ Due to time constraints, no further agenda items had been discussed on 4 March 2020. Therefore, Cova Astorga (LowT TF chair) offered a time slot for further discussion on SG EV topics in the LowT TF web-audio on 5 March 2020.</p> <p style="text-align: center;">--- retake: 5 March 2020 during LowT TF web-audio ---</p> <p>Updated presentation regarding Low Temp test procedure for EVs and pure ICE vehicles, reflecting the discussion, conclusions and agreements in the SG EV web-</p>

audio meeting on 4 March 2020 as well as during the time slot dedicated to SG EV topics in the LowT TF web-audio meeting on 5 March 2020 (document revision 6): [Open topics Low Temp Test Procedure after February IWG IMD and SG EV rev6.pptx](#)

Selected discussion topics and statements are reported hereinafter.

1st soak (NOVC-/OVC-HEV CS condition):

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During the discussion about the need of a first soak, Nick Ichikawa (co-TS, JASIC) asked for the reason, why the EC is insisting on having a first soak period for NOVC-HEV and OVC-HEV (CS condition).

Ricardo Suarez (JRC, on behalf of EC) explained the need for e.g. SCR systems to soak at -7°C in order to condition the system. The main concern lies on LNT and SCR systems.

Cova Astorga (LowT TF chair) suggested to come up with a wording like if such systems are present, a first soak is to be performed unless evidence is given that there is no influence on the test result.

Iddo Riemersma (on behalf of EC) pointed out that such a wording needs to be technologically neutral and cannot apply to e.g. LNT/SCR systems only.

Nick Ichikawa (co-TS, JASIC) asked if evidence would also be needed for e.g. three way catalyst's leading to more testing.

Iddo Riemersma (on behalf of EC) replied that evidence might not mean additional tests but rather technical explanation/documentation.

EC's position was wrapped up as follows: on request of the manufacturer and in agreement with the responsible authority, the first soak can be omitted if there is evidence given that there is no influence on the test result (technology neutral).

Nick Ichikawa (co-TS, JASIC) stated JPN's position as follows: first soak can be omitted as a manufacturer's option but for vehicles using SCR systems, it can be omitted only if there is evidence given to the responsible authority that there is no influence on the test result (this position was slightly adjusted on 5 March 2020, see below).

Bart Thedinga (EC) asked Shumpei Miyazaki (MLIT) for clarification, if JPN's position is what Nick Ichikawa (co-TS, JASIC) proposed.

Shumpei Miyazaki (MLIT) confirmed this and further explained that Team Japan in general discusses JPN's positions internally in advance of the meetings and these positions can then be expressed or presented by any JASIC member tasked with it.

--- retake: 5 March 2020 during LowT TF web-audio ---

Nick Ichikawa (co-TS, JASIC) reported that there were further discussions with MLIT regarding the first soak. JPN's position: first soak shall be deleted from proposal; to be discussed: shall first soak remain for vehicles using SCR(-like) systems?

Nick Ichikawa (co-TS, JASIC) further expressed the need to understand why the first soak is needed and proposed this item to be put in square brackets for the moment.

Ricardo Suarez (JRC, on behalf of EC) confirmed EC's position that the first soak is needed (explanation see under March 4).

Preconditioning (NOVC-/OVC-HEV):

Nick Ichikawa (co-TS, JASIC) pointed out that by using the ATCT method the cycle energy demand cannot be calculated. Concerning the number of cycles to be driven he further explained that the proposed 2 WLTC are for the break-off criterion.

Ricardo Suarez (JRC, on behalf of EC) stated that with 1 WLTC the break-off criterion can be discussed.

Nick Ichikawa (co-TS, JASIC) mentioned to check with JPN's manufacturers but indicated a good chance for acceptance. He further proposed to set 6% on the discharge site, this value being a guess without technical evidence.

It was decided to require 1 WLTC for preconditioning and set the break-off criterion of 6% in square brackets for the moment for further evaluation.

2nd soak (NOVC-/OVC-HEV CS condition):

For the time between the end of preconditioning and the beginning of the cold start test procedure, 2 requirements were discussed: soak time to be 12-36h and for the case when a vehicle is outside the temperature tolerance ($-7^{\circ}\text{C}\pm 3$) during the transfer from a soak area to the test dynamometer for a certain time, then the requirement to soak for 6 times this time period is required. It was decided to put these 2 requirements in square brackets for the moment for further evaluation.

EC comments on 4WD dynamometer:

Bart Thedinga (EC) clarified on a statement made during the meeting on 21 February 2020 in Brussels: EC expects a 4WD vehicle to be tested on a 4WD dynamometer. The same understanding applies as for Type 1 (test can be done on a 2WD dynamometer, if evidence is provided that there is no influence).

He further added that this discussion might not need to take place on GTR level but rather on UNR level.

Shumpei Miyazaki (MLIT) stated that JPN will consider this proposal.

Rob Gardner (DC) reminded the group that in Annex 6 of GTR#15 Amd#6 this option is included and it is also already included in the Low Temp Optional Annex working draft. Depending on the conclusion on this, it might need to be excluded in the Low Temp Optional Annex.

2nd soak & charge (OVC-HEV CD condition & PEV):

--- Discussion 4 March 2020 ---

For the time between the end of preconditioning and the beginning of the cold start test procedure, it might not be possible in some cases to also fulfill the proposed requirement of starting the test within 1h (in addition to the soak time to be 12-36h and for the case when a vehicle is outside the temperature tolerance ($-7^{\circ}\text{C}\pm 3$) during the transfer from a soak area to the test dynamometer for a certain time, where the requirement to soak for 6 times this time period is required).

Nick Ichikawa (co-TS, JASIC) as well as Matthias Nägeli (co-TS, on behalf of OICA) propose for this case the duration as well as the test start within 1h requirement to

be mandatory, while the 6 times the time period requirement to be optional for manufacturers.

There are currently 2 positions regarding the charging during the second soak.

EC position: charging shall be linked to the start of the soak. This means in case of a charging time below 12h (i.e. minimum soak time) the vehicle needs to remain in the soak area until having reached the 12h (plugged in).

JPN position: delayed start of charging allowed in case of charging time below 12h in order to ensure similar battery condition at the start of the test.

It was decided to put this in square brackets for the moment for further evaluation.

--- **retake: 5 March 2020 during LowT TF web-audio** ---

No update. Feedback is required the time between the end of preconditioning and the beginning of the cold start test procedure.

Ricardo Suarez (JRC, on behalf of EC) asked for a draft text wording to be prepared and circulated in advance of the next SG EV web-audio on 11 March 2020.

Preconditioning (PEV):

For preconditioning, it is proposed to use the same constant speed as in the constant speed segment (CSS) of the Type 1 test, while the distance needs to be less than 50km.

Nick Ichikawa (co-TS, JASIC) stated that JPN accepts this proposal.

Iddo Riemersma (on behalf of EC) requested a scrutiny period on the 50km and will provide feedback until the 11 March 2020 web-audio.

1st soak (OVC-HEV CD condition & PEV):

Concerning the first soak for OVC-HEV (CD condition) and PEV, Nick Ichikawa (co-TS, JASIC) indicated the need for JPN to have a maximum value. The proposal is 9-36h, i.e. at least 9h (as was the proposal before) and maximum 36h.

Ricardo Suarez (JRC, on behalf of EC) stated that EC accepts this proposal.

Conclusion on required parameters during Type 6 testing

EC's proposal for required parameters during Type 6 testing (preliminary position)
[required parameter during Type 6 EC.pdf](#)

JPN's proposal for required parameters during Type 6 testing (preliminary position)
[\(MLIT\)required parameter during Type 6 rev1.xlsx](#)

No update. It was proposed to combine the two preliminary positions into one single overview in order to ease the decision process (provided after this meeting, see below).

[Overview required parameter during Type 6 EC JPN prel feedback consolidated.xlsx](#)

Overview of remaining open items (status of topics)

The latest document *WLTP_Low_Temp_TF_Status_list_v2020-xx-yy.xlsx* can be found in the UNECE wiki area: [Optional annex Low T - Drafting](#)

	<p>Row 68 – forced cool down:</p> <p>Peter Bonsack (chair) reminded the group of the agreement on this topic (reflected as such in revision 6 of abovementioned overview presentation).</p> <p>Option 1: vehicles w/o SCR → 6h forced cooling (JRC requested 1h stabilization)</p> <p>Option 2: vehicles w/ SCR → 12h soak period (OICA to provide text for fan speed settings)</p> <p>Bill Coleman (OICA) re-confirmed the intention to provide a draft text proposal for the “fan speed settings”.</p>
2	WLTP Low Temp Test Procedure Development for EVs: family concepts
	<p><u>Family concept for NOVC-HEV and OVC-HEV (incl. ICE)</u></p> <p>Refer to paragraph 5.10. “Low temperature family definition” in latest version of Low Temp Optional Annex (Optional annex Low T - Drafting; see EC’s revised proposal as of 21 February 2020).</p> <p>Pierre Cognet (PSA, on behalf of OICA) presented a proposal on the selection of vehicles for the Type 6 test. Low-Temp Family Concept-non PEV.pdf</p> <p><u>Family concept for PEV</u></p> <p>Peter Bonsack (chair) asked the group, if there are any new thoughts or proposals other than the initial proposal by JPN to start the discussion with “battery capacity” for defining a UBE family.</p> <p>Matthias Nägeli (co-TS, on behalf of ACEA EV) presented ACEA EV’s input for a Low Temp family concept for PEV. WLTP-IMD-05e PEV Low Temp Family idea ACEA EV revised.pdf</p> <p>Nick Ichikawa (co-TS, JASIC) stated that the test vehicle selection should be done with the Type 1 vehicle configuration. Furthermore, a selection order taking Type 1 as a starting point might need to be defined.</p> <p>Iddo Riemersma (on behalf of EC) stated to be sympathetic with the idea of a UBE family. Apart from “battery capacity” and “battery preheating” there might be need to add “same battery insulation/housing” and “on-board charger” as a criteria to the list. There might be others, so it is important to make sure to capture all relevant criteria.</p> <p>Peter Bonsack (chair) reminded the group of the place holder for family concept considerations in the current updated Annex 8 working draft, where there is already a rough draft text structure to be filled in (see Low temperature test procedure xEV draft V7.7.docx).</p>
3	WLTP Low Temp Test Procedure Development for EVs: drafting
	<p><u>Document supporting drafting of Low Temp Optional Annex</u></p> <p><i>Updated Annex 8 working draft for NOVC-/OVC-HEV & PEV (including “PEV Type 6 test procedure”)</i> Low temperature test procedure xEV draft V7.7.docx</p>

	<p><u>Working draft of Low Temp Optional Annex</u></p> <p>The latest document <i>20xxyy – Low Temp Annex based on ECE-TRANS-WP29-2019-62e.docx</i> can be found in the UNECE wiki area: Optional annex Low T - Drafting</p> <p>→ This working draft is consecutively updated by the drafting coordinator (Rob Gardner) according to proposals/discussions/agreements within the SG EV and the LowT TF.</p>
4	GTR#15 Amd#6 Development
	<p><u>Decisions about topics to go/not go into GTR#15 Amd#6</u></p> <p>Updated overview presentation on possible input from SG EV for GTR#15 Amd#6 (<i>postponed topics from UNR WLTP development and additional new topics</i>)</p> <p>200227 Possible inputs SG EV GTR15Amd6 tbd rev1.pdf</p> <p>Matthias Nägeli (co-TS, on behalf of ACEA EV) presented the remaining topics to be decided on by the group.</p> <p><u>Additional topics (new)</u></p> <ul style="list-style-type: none"> - Proposed update in the context of the CO₂/FC correction factor application of HEVs/FCHVs (slide 11) <p>Iddo Riemersma (on behalf of EC) mentioned to be generally positive about this proposal, but asked why a worst case is taken for generator efficiency during charging and not for generator efficiency during discharging as well.</p> <p>Matthias Nägeli (co-TS, on behalf of ACEA EV) will take this comment back to ACEA EV and provide an update of the proposal.</p> <p>Bart Thedinga (EC) signaled willingness to support an updated proposal.</p> <p>Nick Ichikawa (co-TS, JASIC) referred to the same point as Iddo Riemersma and raised the question, if there is a Willans factor for FCHV.</p> <p>Matthias Nägeli (co-TS, on behalf of ACEA EV) will take this question back to ACEA EV and provide an update of the proposal.</p> <p><u>Postponed topics from UNR WLTP development</u></p> <ul style="list-style-type: none"> - Update/amendment of the wording of nominal voltage (slide 4) <p>Nick Ichikawa (co-TS, JASIC) mentioned that there is no update from JPN on this right now. A final decision will be made until next week.</p> <ul style="list-style-type: none"> - Declared number of cycles in CD mode for OVC-HEV (slide 8) <p>Nick Ichikawa (co-TS, JASIC) mentioned that there is no update from JPN on this right now. A final decision will be made until next week.</p>

5	Next meetings (WLTP calendar)
	<p><u>WLTP SG EV web-audios in Q1 2020:</u></p> <p>11 March 2020 (09:00 to 12:00 CET)</p> <p><u>Topics:</u></p> <ul style="list-style-type: none"> - Conclusions on all remaining open topics on test procedures - Conclusions on family concepts - Decision on topics in need of square brackets (if further discussion and evidence is required beyond 17 March 2020 WD deadline) - Conclusions on inputs for GTR#15 Amd#6 <p>→ Further meetings to be scheduled before June 2020 GRPE</p>
6	AOB

For Information

WLTP Low Temp Test Procedure Development for EVs: current proposals	
	<p><i>EC's proposal on Low Temp test procedure for OVC-HEV & NOVC-HEV</i> 2020 01 14 OVC-HEV NOVC-HEV procedure proposal JRC V3</p> <p><i>Update on EC-JRC's proposal on Low Temp test procedure for PEV</i> 2020 02 05 PEV update.pdf</p> <p><i>EC's proposal for required parameters during Type 6 testing (preliminary position)</i> required parameter during Type 6 EC.pdf</p> <p><i>JPN's proposal for required parameters during Type 6 testing (preliminary position)</i> (MLIT)required parameter during Type 6 rev1.xlsx</p> <p><i>JPN's proposal on Low Temp test procedure for NOVC-/OVC-HEV & PEV</i> Test Diagram JAPAN proposal rev4.xlsx</p> <p><i>JPN's proposal on Low Temp test procedure for PEV</i> WLTP-IMD-03e PEV test procedures JPN proposal.pdf</p> <p><i>ACEA's proposal on Low Temp test procedure for NOVC-/OVC-HEV & PEV</i> WLTP-IMD-04e EV Low Temp Test Procedure Proposal ACEA EV revised.pdf</p> <p><i>EC's proposal on Type 6 Family (ICE, NOCV-HEV & OVC-HEV)</i> Refer to paragraph 5.10. "Low temperature family definition" in latest version of Low Temp Optional Annex (Optional annex Low T - Drafting; see EC's revised proposal as of 21 February 2020)</p> <p><i>ACEA's input for Low Temp family concept for PEV</i> WLTP-IMD-05e PEV Low Temp Family idea ACEA EV revised.pdf</p>