36th WLTP Sub Group EV in conjunction with 37th LowT TF Meeting	
Date	21 February 2020
Time	10:00 to 15:00 CET
Title	36th WLTP Sub Group EV / 37th LowT TF Meeting – Minutes (SG EV in conjunction with LowT TF)
Location	European Commission, DG GROW, Avenue d'Auderghem, Brussels ROOM BREY 05/A - F. BRAUN

0	**Revision & adoption of meeting minutes & agenda**
	- Meeting minutes of web-audio meeting on 6 February (LowT TF) and 13 February 2020 (SG EV) 2020-02-06_36th_LowT_TF_TelCo_Minutes_v1.pdf → Adopted 01_WLTP SG EV Minutes 13 February 2020.pdf → Adopted - 00_WLTP SG EV & LowT TF Agenda 21 February 2020.pdf → Adopted
1	**WLTP Low Temp Test Procedure Development: inputs**
	Reminder: *timeline for defining Low Temp test procedures and family concepts for NOVC-/OVC-HEV and PEV (see slide 3):* 200127_SG EV Low Temp Test Procedure for EV - Schedule.pdf No new inputs were presented as there are currently all relevant discussion topics for defining the Low Temp test procedures and family concepts for ICE, NOVC-HEV, OVC-HEV and PEV reflected in the current proposals (see overview of current proposals at the end of this document).
2	**WLTP Low Temp Test Procedure Development: discussion on open items**
	Overview of open items (revision on status of topics) The WLTP Low Temp TF Status list was revised with the input and guidance given by the WLTP IWG on 19/20 February 2020 (see WLTP Intermediate Meeting) as well as the outcome of the discussions in this SG EV / LowT TF meeting. 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
3	**WLTP Low Temp Test Procedure Development: drafting**
	Discussion on Auxiliary Devices Major discussion points on auxiliary devices included: - Definition of an "auto mode" needed in order to address semi-automatic systems - Adding a new sentence/paragraph to take into account JPN's proposal on fan speed for manual systems (lowest – lowest to max – max – max to lowest – lowest). The proposal is included in the sheet "heater setting" of document Test Diagram_JAPAN proposal_rev4.xlsx and also provides the application in the cycle to do so.

	- Requirement for manual air conditioning (AC to be switched on) to be added (paragraph 1.2.5.) In addition there was a discussion regarding the requirement to switch on auxiliary devices which are additional (either in existence or function) to the minimum mandatory safety requirements. Bill Coleman (OICA) expressed a concern that this could degrade the safety of vehicles in the market (depending on the usage of the low temperature measurement results). Bart Thedinga (EC) responded to this concern that regarding safety, each vehicle type needs to comply to specific minimum defrost/demist provisions, according to Commission Regulation (EU) No 672/2010, in order to be granted an EU Whole Vehicle Type Approval. In order to simulate a real life situation and the corresponding impact on electric consumption/range, any available defrost systems would need to be activated during the type 6 test. Olle Berg (OICA) added that the same concern mentioned above also applies to switching on dipped beams. Discussion on Reference Fuels Nick Ichikawa (co-TS, JASIC) presented JPN's reference fuel specifications. They will be provided to Rob Gardner (DC) for inclusion into the working draft of the Low Temp Optional Annex. He also presented a request to modify the vapour pressure specification of the European Type 6 reference petrol, E10. Nevertheless, the proposed vapour pressure (DVPE) for petrol (E10) seemed to be a bit too tight for Europe, therefore, Bill Coleman (OICA) made a counter proposal on the DVPE minimum and maximum limit values. This issue needs to be resolved in the next LowT TF web-audio meeting. Discussion on Low Temp test procedures Matthias Nägeli (co-TS) presented an overview of the main open discussion points related to the Low Temp test procedure development for EV. Open topics Low Temp Test Procedure after February IWG IMD and SG EV.pptx Major discussion points for OVC-HEV CD condition include the number of cycles allowed for pre-conditioning as well as the specifics for the 2nd soak and charge. Ricardo Suarez (JRC) indicated that preconditioning of the vehicle by using 1 WLTC in charge sustaining operation would in his view result in a procedure yielding more representative test results as the vehicle and its components (battery, aftertreatment system) would be warmed up less. Moreover, the current proposal allows manufacturers to set the vehicle's SoC to charge sustaining before the first soak, which would assure the condition of 1 WLTC during precondition to be satisfied. Regarding the charging protocol, as was indicated by Elena Paffumi (JRC) during the WLTP Intermediate Meeting on 20 February 2020, starting the charging event right after finishing the preconditioning (option preferred by EC) would be more representative of the customer behavior. It was also explained that the two approaches proposed (by EC and JPN) would result in a 10% difference in range of the tested PEV, while the lower range is being obtained with the approach suggested by the EC. Moreover, Ricardo Suarez (JRC) added that for OVC-HEV, the AER and criteria

	emission values would change using the battery preconditioning approach proposed as the preferred option by JPN. Nick Ichikawa (co-TS, JASIC) will consult with JPN's EV experts on this topic. Major discussion points for PEV include the specifics for the 2nd soak and charge as well as the PEV test procedure itself (i.e. "alternative/shortened STP"). Further discussion points might be identified while working on the draft text. Nevertheless, Peter Bonsack (chair) asked the stakeholders to come forward with consolidated proposals for these issues for the next web-audio on 4 March 2020 in order to ease the drafting work. Cova Astorga (LowT TF chair) offered to mediate between the stakeholders with different positions in order to solve the open topics and reach the goal of providing a working document by the 17 March 2020 deadline. As the guidance from WLTP IWG in the meeting on 20 February 2020 for SG EV was to focus on the development of an "alternative/shortened STP" (i.e. a specific PEV Type 6 test procedure) a working draft of this text portion was being presented during the meeting to the group by the PEV Low Temp test procedure drafting volunteers (Bryan Roos and Sam Tripathy). → PEV Alternate STP test procedure V3.rtf Regarding breaks in the dynamic segments of the test cycle it was proposed not to allow any, but in the constant speed segment breaks should be allowed. Nevertheless, the duration might need revision. Nick Ichikawa (co-TS, JASIC) will consult with JPN's EV experts on this topic. Further details will need to be discussed in the upcoming web-audio on 4 March 2020 on this "alternative/shortened STP". A proposal by any member of SG EV on a more appropriate name for this procedure will be welcomed by the group. It was further decided to implement this draft text into the existing Annex 8 working draft for NOVC-/OVC-HEV & PEV (Low temperature test procedure xEV draft V7.6.docx). This had been done just after the meeting and the draft document is now available for the group: → Low temperature test procedure xEV draft V7.7.docx SG EV members are requested to use this draft version for further discussions, comments and text improvement proposals. Until 17 March 2020, SG EV needs to decide if the alternative/shortened STP can be integrated into the working document to be submitted to the UN secretariat or if the concept needs to be in square brackets for the moment. Discussion on required parameters during Type 6 test Shumpei Miyazaki (JPN) presented JPN's (tentative) proposal on required parameters to be provided by Type 6 testing. It might be possible that only one cycle for OVC-HEV CD testing is sufficient if this test can estimate EC, EAER and emissions. Furthermore, JPN has no strong desire to require CO_2 and FE values for Type 6 testing. → (MLIT)required parameter during Type 6_rev1.xlsx

	Ricardo Suarez (JRC) indicated that the full CD testing is requested from EC because the highest values of criteria emissions appear during this section of the procedure, being even higher than those measured during the CS section. Shumpei Miyazaki (JPN) indicated that this needs further consideration. Peter Bonsack (chair) asked the stakeholders to come forward with a consolidated proposal on required parameters during Type 6 testing for the next web-audio on 4 March 2020 in order to ease the drafting work. Discussion on family concepts A revised proposal from EC for Type 6 family building was presented by Ricardo Suarez (JRC) for ICE, NOVC-HEV and OVC-HEV. In the group discussion, it was suggested to avoid the term "vehicle type" and rather use e.g. "powertrain". It was confirmed by EC that the focus is on emissions for these powertrains including an ICE in their configuration (i.e. pure ICE vehicles as well as NOVC-HEVs and OVC-HEVs). The proposal is to separate this "emission based" family from a family to be defined for PEV. JPN proposed to consider a UBE family concept for PEV where a parent vehicle is to be tested and all children vehicles are included by it (see JPN's proposal for PEV presented in the WLTP Intermediate Meeting on 20 February 2020: WLTP-IMD-03e_PEV test procedures_JPN proposal.pdf). The UBE family definition needs further discussion in order to address the trade-off between required accuracy and additional testing needed. JPN proposes "battery capacity" as a discussion starter. Peter Bonsack (chair) asked the stakeholders to come forward with consolidated proposals on this UBE family definition for the next web-audio on 4 March 2020 in order to ease the drafting work. General topic: JPN indicated that an alternative/shortened STP might also be suitable for the Type 1 test to replace the CCP/STP approach (see JPN's proposal for PEV presented in the WLTP Intermediate Meeting on 20 February 2020: WLTP-IMD-03e_PEV test procedures_JPN proposal.pdf). Nevertheless, this would need to be discussed at a later stage. Working draft of Low Temp Optional Annex The latest document *20xxyy – Low Temp Annex based on ECE-TRANS-WP29-2019-62e.docx* can be found in the UNECE wiki area: Optional annex Low T - Drafting → 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. Document supporting drafting of Low Temp Optional Annex *Updated Annex 8 working draft for NOVC-/OVC-HEV & PEV (including "PEV Type 6 test procedure")* Low temperature test procedure xEV draft V7.7.docx

4	**Next meetings (WLTP calendar)**
	WLTP SG EV web-audios in Q1 2020: 4 March 2020 (09:00 to 12:00 CET) Topics: - Focus on remaining open topics on test procedures; conclusion on all open points - Discussion on family concepts (if time allows) - Conclusions on further inputs (beyond Low Temp) for GTR#15 Amd#6 (if time allows) 11 March 2020 (09:00 to 12:00 CET) Topics: - 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 → Further meetings to be scheduled before June 2020 GRPE
5	**AOB**

For Information

	WLTP Low Temp Test Procedure Development for EVs: current proposals
	*EC's proposal on Low Temp test procedure for **OVC-HEV** & **NOVC-HEV*** 2020_01_14_OVC-HEV_NOVC-HEV_procedure_proposal_JRC_V3 *Update on EC-JRC's proposal on Low Temp test procedure for **PEV*** 2020_02_05_PEV_update.pdf *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 *JPN's proposal on Low Temp test procedure for **NOVC-/OVC-HEV** & **PEV*** Test Diagram_JAPAN proposal_rev4.xlsx *JPN's proposal on Low Temp test procedure for **PEV*** WLTP-IMD-03e_PEV test procedures_JPN proposal.pdf *ACEA's proposal on Low Temp test procedure for **NOVC-/OVC-HEV** & **PEV*** WLTP-IMD-04e_EV Low Temp Test Procedure Proposal_ACEA EV_revised.pdf *EC's proposal on Type 6 Family (**ICE, NOCV-HEV** & **OVC-HEV**)* 200114_Type 6 Family_EC_Proposal_update.pdf *ACEA's input for Low Temp family concept for **PEV*** WLTP-IMD-05e_PEV Low Temp Family idea_ACEA EV_revised.pdf