Progress report of Sub Group EV (WLTP-19-14e)

19th WLTP IWG
6 June 2017
## 1. Summary

<table>
<thead>
<tr>
<th>#</th>
<th>items</th>
<th>RESULTS</th>
<th>status</th>
<th>remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV_1</td>
<td>HEV system power</td>
<td>EVE procedure to be based on ISO procedure. WLTP IWG discussed answers of questions from EVE IWG. WLTP IWG waits for EVE’s draft gtr. SG EV will collaborate with EVE in June GRPE.</td>
<td>OPEN</td>
<td>Classification, Downscaling</td>
</tr>
<tr>
<td>EV_2</td>
<td>Normalization or Drive Trace Indexes</td>
<td>JP proposed indexes and criteria in 18th IWG. WLTP IWG is discussing JP’s proposal.</td>
<td>OPEN</td>
<td>Study the applicability to HEV</td>
</tr>
<tr>
<td>EV_3</td>
<td>Supplemental Test (low temp./high altitude)</td>
<td>TOR and work plan were presented at 18th WLTP IWG. JP introduces low temp. test study in 18th IWG. JP also introduce the data of REESS stabilization in TF. SG EV started discussing pre-setting and soak procedure with TF.</td>
<td>OPEN</td>
<td>Handle EV unique portions</td>
</tr>
<tr>
<td>EV_4</td>
<td>Supplemental Test (auxiliary device)</td>
<td>Not active at this moment.</td>
<td>OPEN</td>
<td>Handle EV unique portions</td>
</tr>
<tr>
<td>EV_5</td>
<td>Post processing</td>
<td>Adapted</td>
<td>CLOSED</td>
<td>Handle EV unique portions</td>
</tr>
</tbody>
</table>
# 1. Summary

<table>
<thead>
<tr>
<th>#</th>
<th>items</th>
<th>RESULTS</th>
<th>status</th>
<th>remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV_6</td>
<td>Durability</td>
<td>WLTP IWG is discussing answers of questions from EVE IWG. SG EV will collaborate with EVE in EVE IWG on 7 June.</td>
<td>OPEN</td>
<td>study on battery durability</td>
</tr>
<tr>
<td>EV_7</td>
<td>OBD</td>
<td>No progress. Continue to follow OBD TF.</td>
<td>OPEN</td>
<td>Handle EV unique portions</td>
</tr>
<tr>
<td>EV_8</td>
<td>FCHV</td>
<td>OVC-FCHVs proposal from ACEA is still under discussion and topic will be shifted to Phase 2b. JP is waiting for answer from ACEA for clarification</td>
<td>OPEN</td>
<td>OVC-FCHV Flow Method</td>
</tr>
<tr>
<td>EV_9</td>
<td>gtr amendment</td>
<td>ACEA proposed several items.</td>
<td>OPEN</td>
<td></td>
</tr>
</tbody>
</table>
2. Collaboration with IWG EVE

EV Communication in the UNECE Framework
2. Collaboration with IWG EVE

**EV_1 HEV system power**

<table>
<thead>
<tr>
<th>EVE IWG’s questions to WLTP IWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>- WLTP IWG’s draft answers to EVE IWG</td>
</tr>
</tbody>
</table>

Q1. Is only peak power still okay? i.e. is there a need for a power curve, or is a curve just a “nice to have?”
- For now, peak power should be ok for WLTP needs (cycle classification and downscaling).

Q2. What timing is acceptable? Specifically, would a final procedure approved by November 2019 be acceptable?
- Acceptable (No CP needs system power at this moment).

Q3. Would two step approach be acceptable, with the reference method developed/validated first, and then candidate method (calculation based on component data) developed at a future time?
- WLTP also needs to decide if candidate method should still be considered or if reference method is sufficient.
- Candidate method development is depending on industry contribution and need/interest.

Q4. Is there a need for a different power value for charge-depleting vs charge-sustaining mode?
- There is a need only one peak system power because WLTP needs it for cycle classification and downscaling as mentioned above.
## 2. Collaboration with IWG EVE

### EV_6 Durability

Matrix of durability requirements from EVE for WLTP to consider

<table>
<thead>
<tr>
<th></th>
<th>air pollutants</th>
<th>CO₂/energy consumption</th>
<th>range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HEV</strong></td>
<td>Is requirement for in-use compliance sufficient? (5 year, 100,000 km already in place in EU)</td>
<td>???</td>
<td>X</td>
</tr>
<tr>
<td><strong>PHEV</strong></td>
<td>Is requirement for in-use compliance sufficient? (5 year, 100,000 km already in place in EU)</td>
<td>???</td>
<td>???</td>
</tr>
<tr>
<td><strong>PEV</strong></td>
<td></td>
<td>X</td>
<td>Is WLTP goal to regulate range maintenance of PEVs, or is this a manufacturer/customer satisfaction issue only?</td>
</tr>
</tbody>
</table>
### 3. Next Actions

<table>
<thead>
<tr>
<th>#</th>
<th>items</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV_1</td>
<td>HEV system power</td>
<td>collaborate with EVE</td>
<td></td>
<td></td>
<td>Consider classification</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>threshold and downscale ratio</td>
</tr>
<tr>
<td>EV_2</td>
<td>Normalization or Drive Trace Indexes</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>additional study “Indexes”</td>
<td></td>
</tr>
<tr>
<td>EV_3</td>
<td>Supplemental Test (low temp./high altitude)</td>
<td>collaborate with TF</td>
<td></td>
<td>Amend_2, if necessary</td>
<td></td>
</tr>
<tr>
<td>EV_4</td>
<td>Supplemental Test (auxiliary device)</td>
<td>collaborate with TF</td>
<td></td>
<td>Amend_2, if necessary</td>
<td></td>
</tr>
<tr>
<td>EV_5</td>
<td>Post processing</td>
<td></td>
<td></td>
<td>complete</td>
<td></td>
</tr>
<tr>
<td>EV_6</td>
<td>Durability</td>
<td>collaborate with EVE and TF</td>
<td></td>
<td></td>
<td>decision for next step</td>
</tr>
<tr>
<td>EV_7</td>
<td>OBD</td>
<td></td>
<td></td>
<td>collaborate with OBD TF</td>
<td>takes care of EV unique items</td>
</tr>
<tr>
<td>EV_8</td>
<td>FCV</td>
<td>OVC-FCHV proposal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>finalization</td>
<td></td>
</tr>
<tr>
<td>EV_9</td>
<td>gtr amendment</td>
<td>Amend_1</td>
<td></td>
<td>Amend_2, if necessary</td>
<td></td>
</tr>
</tbody>
</table>