

WLTP DHC subgroup	
<b>Title</b>	Minutes of 5th Meeting
<b>Working Paper Number</b>	WLTP-DHC-05-08

## MINUTES OF 5<sup>th</sup> WLTP-DHC MEETING

1. This note records the discussions and outcomes of the fifth WLTP-DHC meeting, held on 14<sup>th</sup> October 2010 at the Federal Ministry for Transport Innovation and Technology in Vienna, Austria.

### Data Collection Plans

2. UK noted that their data collection exercise had just been completed and the data would be submitted shortly. Belgium had already submitted data but would deliver additional data gathered on 18 VW Polos by the end of the year. US-EPA indicated that they had some processing to complete before they submitted their data, but hoped to make this available soon. India noted that adverse weather conditions had delayed their data gathering plans but hoped to be able to submit their data by the end of December or the end of January at the latest.
3. Korea presented DHC-05-07 on the results of their data gathering and analysis. It was noted that choosing the short trips best matching the speed-acceleration distributions did not give equal length phases, an issue covered by Japan's revised analysis methodology proposal.
4. JRC noted that their data gathering on light goods vehicles in Poland was complete and that they hoped to start gathering data on cars in the UK and Spain shortly. **Contracting Parties were asked to submit their data as soon as possible and in any event no later than the end of January.** It will not be possible to include data received after this date in the cycle development. **Contracting Parties were also reminded of the need to submit traffic statistics data, also by the end of January, for use in developing weighting factors. UK will approach the Commission for a contact at Eurostat/EEA who might have access to EU traffic statistics data.** Sweden requested clarification on what traffic statistics data was required, it was noted that this was contained in earlier DHC documents (DHC-02-04 & 05<sup>1</sup> with weighting factors to be adjusted as per DHC-03-02<sup>2</sup>).

### Analysis of Initial Data

5. Mr Steven presented DHC-05-03. It was noted that based on EU data submitted to date (330,000km of driving) Low and Medium speed driving was similar between regions, but High speed driving differed with the EU having higher

<sup>1</sup> [http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/wltp\\_dhc02.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/wltp_dhc02.html)

<sup>2</sup> [http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/wltp\\_dhc03.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29grpe/wltp_dhc03.html)  
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maximum speeds and longer trip durations. Sweden commented that the first short trip of the Low speed cycle should be drawn from the first trips of the day to ensure representative cold start behaviour. JRC queried whether the approach of excluding short trips of less than 10 seconds duration was appropriate. Mr Steven noted that a similar approach was found to be necessary in WMTC to ensure good drivability/repeatability of the drive cycle, but indicated that he would present the results of analysis with and without these trips excluded at a later meeting.

## **WLTC Development Methodology**

6. Japan presented DHC-05-04. They concluded that classification of data into Low, Medium and High speed driving phases (rather than Urban, Rural and Motorway) improved the comparability of regional data and would assist the development of a representative harmonised cycle. Three potential methods of categorising the data into Low, Medium and High speed distributions were presented. Initial analysis (based on available data at this moment) suggested that 50km/h and 90km/h Vmax thresholds for defining Low and Medium speed phases gave similar speed-acceleration distributions although High speed driving distributions remained different due to higher EU maximum speeds. **It was agreed that the Low, Medium and High speed phase approach would be adopted.** However, **a decision on how to categorise driving data between Low, Medium and High speed distributions would not be taken until the full dataset was available.**
7. EPA noted the need to filter driving data for any data erroneously “locked” at a constant speed, and asked whether the existing data included low powered vehicles. Mr Steven noted that the lowest power vehicle in the dataset was 31kW (i.e. not really low powered).
8. **It was agreed that Japan should present at the next meeting examples of their two modified methods of selecting representative short trip and idle duration data** (aiming to deliver equal length cycle phases in the case where N was not an integer). Sweden noted that idle periods needed to be representative for evaluating the benefits of stop-start technology. **It was agreed that available data on clutch actuation/gear engagement would need to be reviewed in this context for the next meeting.**
9. Japan’s proposed to split High speed short trips into 5 segments in order to retain and make use of >600 second short trips in developing the High speed phase. It was noted that smoothing of the interfaces between segments of the phase would be required. The discrepancy between EU versus Japanese and Korean High speed driving was discussed. Sweden noted the importance of capturing high speed driving in respect of EGR strategies. Mr Ichikawa felt that a High speed phase that was representative of the unified High speed speed-acceleration distribution was sufficient and that other conditions would be covered by off-cycle controls. **It was agreed that the High speed dataset would be analysed in two ways i) with 5 segments and only one “cruise” speed and ii) with more than 5 segments and two “cruise” speeds and the results of the analysis reviewed at the next meeting.**

10. JRC requested a more detailed description of the proposed means of handling the extremely large number of Low speed short trip combinations. **It was agreed that Japan would prepare a paper for the next meeting.**

### **WLTC Structure**

11. Japan presented DHC-05-05 Rev.1 noting the need for repeat cycles to be conducted for electric range testing and DPF regeneration testing. They queried whether 3 equal length phases was the best approach in the light of this or whether phase lengths reflecting Low, Medium and High Speed traffic data was more appropriate. The question was also asked as to whether the cycle needed to be repeated from both cold and hot starts or whether a cold start Low speed phase, followed by hot start Medium and High speed phases was sufficient. In the event that both cold and hot start tests are specified the question was also raised as to whether only the Low speed phase need be repeated or Low and Medium speed phases. **OICA agreed to consider these questions and provide an opinion by the end of November.** EPA expressed a preference for cold and hot start repeats
12. Contracting Parties were requested to submit data on cold soak distribution times, driving distances per trip, traffic volumes by cycle phase and temperature drop ratios for the development of cold start weighting factors (in the event that both cold and hot start repeat tests are specified). OICA noted that data on temperature drop ratios etc must be based on vehicle data and not engine test bed data. It was clarified that this data would only be used to develop the weighting factor for weighting the cold start test results not for defining the pre-test cold soak period which was a DTP issue.
13. Japan's proposal for developing fixed gearshift points for cars and for light goods vehicles was discussed. OICA preferred vehicle specific shift points especially for hybrid vehicles. Mr Steven preferred gearshift points based on engine speeds as per WMTC as a better way of handle gearboxes with different numbers of ratios. Mr Ichikawa noted that the DTP electric vehicles group could specify separate gearshift procedures for hybrids if they felt this was appropriate and that separate gearshift speed tables could be an option for gearboxes with different numbers of ratios. **It was agreed that this issue would be reviewed at the next meeting in the light of any alternative proposals received prior to the next meeting.**

### **Next Steps**

14. Written views on the proposed cycle phase construction in DHC-05-05 Rev.1 was requested by the end of November in order to enable a revised proposal to be prepared by the end of December for consideration at the next meeting in January 2011.
15. It was agreed that a final agreement on the data analysis methodology would be sought in January 2011 and the first version of the test cycle should be developed by the beginning of April. In parallel cycle validation test plans should be developed from February to April.

**Chris Parkin - DHC sub-group vice chair**