Status report of the WLTP Informal Working Group

Report to the 71st GRPE session by Stephan Redmann
WLTP IWG Meetings since last GRPE

14 – 16 April 2015  10th WLTP IWG, Stockholm, Sweden
⇒ Minutes WLTP-10-42e

9 - 10 June 2015  11th WLTP IWG, Geneva, Switzerland
⇒ Minutes WLTP-11-28e

Continuously  IWG Subgroup & Task force meetings, audio/web conferences
Annex 1/2: Cycle & gear shifting issues

Status report from H. Steven (WLTP-11-05e):

→ Closed items:
  Downscaling, use of gear box (def. \( n_{\text{max}} \), \( P_{\text{wot}} \)), determination of engine speed, calculation of available power, 3s rule, gear shift family criteria, further improvements of gtr text

IWG No. 11: exclusion of aux. gears (crawler gear) (WLTP-11-06e)

→ On-going discussions:
  Use of gear box (def. \( n_{\text{min\_drive}} \)),
  Road load coeff. in gear shift calculation (→ Annex 4 issue)

→ Adoption foreseen at IWG #12.
Annex 4: Road load and dynamometer setting

Status reports from R. Cuelenaere: (WLTP-10-13e/ WLTP-11-11e)

→ Closed key items:

  - Speed points, alternative warm up procedure, wheel alignment.

  IWG #10: - Wind tunnel / flat belt method (WLTP-10-16e)
  - Road load family concept (WLTP-10-17e)

  IWG #11: - Manufacturer’s responsibility for accuracy of road load provisions (WLTP-11-13e)
  - Equivalency of torque meter method confirmed (WLTP-11-15e)
  - Wind speed criteria: regional option removed (WLTP-11-14)
On-going discussions on key issues:

- Review of on-board anemometry usage
  - Improvements based on SAE standard
- Review of torque meter method
- Introduction of Roadload Matrix Family
  - Alternative calculation method for default road load parameters
    Scope: multi-stage and low-volume vehicles ($mplm > 3000 \text{ kg}$)
    Controversial: necessary safety margin for upward (vehicle H) and downward (vehicle L) extrapolation
  - CP feedback needed

In general good progress, adoption expected at IWG #12

Pending:

- Tyre selection criteria of combined approach
Annex 5: Test equipment and calibrations

- Closed items:
  - Review of 4WD specifications, Chassis dyno calibration aspects, additional experts proposals.
- All OIT items closed.
Annex 6: Test procedure and test conditions

→ Closed items:
  Provisions for Coasting → Working item WLTP Phase 2
  IWG #10: ki factor aspects (WLTP-10-27e)

→ On-going discussions on key issues:

- Speed trace violations, Drive trace index (WLTP-11-21e)
  → Improvement of drive traceability, screening tool, „void test“ decision

- Number of tests (WLTP-11-20e)
  → Agreed: 1 or 2 tests for criteria pollutants (90% threshold)
  Controversial: number of tests to confirm declared value for CO2
  Problem: different regional certification procedures & required safety margins → regional option = disharmonization
  EU: conservative approach (→ most likely 2-3 tests)
  JPN, KOREA, INDIA: harmonized compromise (→ most likely 2 tests)
Annex 7: Calculations

→ Closed items:
   FC calculation issues, FC interpolation method, Calculation formulas for Ammonia (NH₃),
   **Correction algorithms** (further investigations in Phase 2)

→ On-going discussions:

  - **Additional pollutants:**
    Calculation formulas for Ethanol & Aldehyde
    (Validation program starts end of June)
**Annex 8:** Pure and hybrid electric vehicles

→ **Closed key items:**
   - Utility factors
     - **IWG #10:** FCV test procedure, RCB correction

→ **On-going discussions:**
   - Phase specific calculation
   - CO2 family and interpolation approach
   - Mode selectable switch
   - End of EV range criteria
   - PEV shortened test procedure
   → Close to agreements, adoption expected at IWG #12.
Annex 9: System equivalency

Objective: statistical procedure for comparison and validation of alternative measurement equipment and measurement procedures.

Similar regulations in GTR 4 (WHDC), US EPA 1065, SAE & ISO standards

Task: review and amendments for LDV test procedure need, if necessary

IWG #11: Determination of system / measurement method equivalency based on ISO standard

Implementation requirements to be included in WLTP Phase 2

→ Item closed
General issues:

→ **GTR Drafting:**
  - **Subgroup „Drafting“**, chaired by Drafting Coordinator.
  - Tasks: Peer review of GTR (inconsistencies check), decisions on expert proposals, editorial review of task force / IWG proposals

→ **Current GTR Draft** (amendments to GTR No. 15):
  - WLTP-11-04e (track changes / clean version)
  → Provided as **GRPE Informal documents** (**GRPE-71-xx / -yy**)

**Additional drafting tasks:**

  - Update of Part A of GTR No. 15
  - Update of Technical Report

→ Technical GTR Sponsors: Japan / European Commission
Definitions:

- General review regarding inconsistencies, e.g. mass definitions
- Review of VPSD recommendations, e.g. HEV definition (GRPE/2015/13, GRPE-71-xx)

IWG #11: First comparison of WLTP – VPSD definitions (WLTP-11-24rev1e)

Thorough check until September 2015 needed:

- Which definitions are used in GTR 15?
- Implications of new VPSD hierarchies?
- Implications on GTR contents / intentions?

→ time critical!

→ WLTP IWG may not be able to transpose all VPSD recommendations
→ Round Robin Exercise

- European & Asian (Japan, India, Korea, China) exercises are on-going.
- US EPA and India are participating in cross-over checks.
- Finalization of Round Robin end of 2015.

IWG #11: First results from EU
→ no need for major GTR amendments

IWG #12: First results of Asian exercise are expected
WLTP Phase 1b Roadmap

2014
1 2 3 4 5 6 7 8 9 10 11 12

WP.29

2015
1 2 3 4 5 6 7 8 9 10 11 12

GRPE

2016
1 2 3 4 5 6

WLTP

18.10.

Fix organization, responsibilities and time schedule

Phase2 mandate

Round Robin
WLTP Phase 2

→ Starting note and Phase 2 items Questionnaire were presented by Technical GTR Sponsor Japan, K. Kobayashi, at GRPE No. 70

→ Feedback to Questionnaire by Contracting Parties (and other stakeholders) is summarized in WLTP-11-26.

→ **Draft proposal for WP.29/ AC.3 mandate** submitted by Technical GTR Sponsors to GRPE No. 71 (GRPE-71-xx).

→ Adoption foreseen in WP.29, November 2015.
WLTP IWG meetings in 2015

IWG #12  Week of September 28th, Tokyo, Japan

3-days IWG meeting,
in conjunction with Subgroups EV and Drafting