Status report of the WLTP Informal Working Group

Report to the 70th GRPE session by Stephan Redmann
WLTP IWG Meetings since last GRPE

17-20 November 2014  8th WLTP IWG, Pune, India  
                     ➔ Minutes WLTP-08-48e  

14th January 2014    9th WLTP IWG, Geneva, Switzerland  
                     ➔ Minutes WLTP-09-29e  

Continously          Task force meetings, audio/web conferences
Status of WLTP phase 1B working items

→ Open issues table: WLTP-09-03e
→ Meeting minutes: WLTP-09-29e

Annex 1/2: Cycle & gear shifting issues

Status report from H. Steven (WLTP-09-07e):

→ 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.

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

→ Adoption foreseen at IWG #10.
Annex 3: Reference fuels

→ No phase 1B working items.

Annex 4: Road load and dynamometer setting

Status report from R. Cuelenaere: (WLTP-09-07e)

→ Closed items:
   Speed points, alternative warm up procedure, wheel alignement.

→ On-going discussions on key issues:
   - Wind tunnel / moving belt method
   - Review on-board anemometry / wind conditions
   - Review default road load parameters
     (combined default road load approach, adjustments for N1)

→ Adoption foreseen at IWG #10.
→ On-going discussions (cont.):
  - Road load family concept
  - Review torque-meter method

→ Pending:
  - Tyre selection criteria of combined approach

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**Annex 5: Test equipment and calibrations**

→ Closed items:
  Review of 4WD specifications, Chassis dyno calibration aspects.

→ All OIT items closed.

→ On-going:
  Review of (new) experts proposals, if necessary.
Annex 6: Test procedure and test conditions

→ Closed items:
  - Handling of Ki approach (most items)
  - **Provisions for Coasting** *(WLTP-09-15e)*
    - Delayed progress, mainly because of fundamental discussions on “cycle modification” (reservations by EU, JPN)
    - Time constraints, extensive data analysis necessary
  → Working item closed for phase 1B
  → Coasting technology will be reconsidered in *WLTP phase 2*
    (strong interest of CLEPA)

→ On-going discussions (key issues):
  - **Speed trace violations, Driving trace index** *(WLTP-06-16e)*
    → Aim: Screening tool (SAE based methodology), „void test“ decision
    → Connected with correction algorithms proposal by EU COM
→ On-going discussions (cont.):

- **Number of tests** *(WLTP-09-21-rev1e; incl. -22e)*
  
  Aim: improve current GTR provisions from R83 (up to 3 tests)
  → 1 or 2 tests with repetition criteria: [90] % of limit value.
  → Key points of discussion:
    - Different approach for CO₂? (No limit values. Declared value.)
    - If no single CO₂ test: repition criteria?
Annex 7: Calculations

→ Closed items:
  FC calculation issues, FC interpolation method

→ Correction algorithms (WLTP-08-37e/-38e)
  - Speed trace violations
    → Phase 1B: Drive Trace Index, Phase 2: Corrections.
  - Wheel alignment (RLD)
    → Solved: WLTP-09-10e.
  - Rotational inertia correction
    → Objected, negative cost/benefit.
  - Inacc. of road load settings on chassis dyno
    → Task Force RLD, probably solved in phase 1B.
  - Other issues: further investigations necessary.
    → Possibly WLTP phase 2 issues.
→ Closed items (cont.):
  - **Additional pollutants:**
    Calculation formulas for Ammonia (NH₃)

→ On-going discussions (cont.):
  - **Additional pollutants:**
    Calculation formulas for Ethanol & Aldehyde
    (Validation delayed due to measurement equipment availability)
Annex 8: Pure and hybrid electric vehicles

→ Closed key item:

- **Utility factors**
  1) Harmonized methodology in GTR to derive regional UF values
     → reference to SAE standard
  2) UFs based on regional choices (e.g. fleet / individual values)
     → overview of regional UFs will be given in GTR

→ On-going discussions:

- **RCB Correction and phase specific calculation**
- Mode selectable switch
- CO2 family and combined approach
  → Adoption IWG #10.

- End of EV range criteria, PEV shortened test procedure, FCV test procedure
Annex 9: System equivalency

- Reserved annex in GTR 15.
- Objective: statistical procedure for comparison and validation of alternative measurement equipment and measurement procedures.
- Similar regulations in GTR 4 (WHDC) and EPA 1066

→ Review of existing regulations and adoption at IWG #10.
General gtr issues:

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

→ Definitions:
  - **VPSD recommendations**, e.g. HEV definition
  - Review / transposition to WLTP GTR
  → Separate meeting of Subgroup „Drafting“.
→ **Indication of temperatures °C / Kelvin** (WLTP-09-19e)

Based on DIN EN ISO 80000-5
- Define 0° C as 273.15 K
- Use “°C” for definition of temperatures
- Use Kelvin (with .15) in calculations
- Delete redundant information: ± 5 K (± 5 °C ) (Example)

→ **Recommendation:** align other GTRs, e. g. EPPR

Probably alignment of others? (kWh...)

→ **Round Robin Exercise**

- European & Asian exercises are on-going. Finalization end of 2015.
- US EPA & China announced participation.
- EU: cross-over measurements with India, US.
WLTP Phase 1b Roadmap

2014
1 2 3 4 5 6 7 8 9 10 11 12
WP.29
GRPE
WLTP

2015
1 2 3 4 5 6 7 8 9 10 11 12
Phase2 ToR
70
71
gtr informal
document
Slight modification

2016
1 2 3 4 5 6
167
168
169
72
13
14

Fix organization, responsibilities and time schedule
Round Robin
→ **Starting note** by Japan, K. Kobayashi: WLTP-08-41-rev1e, incl. Questionnaire (WLTP-08-41-rev1e_annex)

→ Position on **EV issues phase 2 & 3** by EU-COM (WLTP-08-42e (EVE-12-06e))

→ **Possible working items:**
  - Low ambient temperature
  - High altitude test
  - In-service conformity
  - Durability
  - Mobile air conditioning
  - EV issues

→ **Feedback by Contracting Parties** (and other stakeholders) requested until **end of February 2015**
WLTP IWG meetings in 2015

IWG #10  14.-16. April (EV Subgroup on 13th)
Stockholm, Sweden

IWG #11  June GRPE, full day requested
Geneva, Switzerland

IWG #12  September, dates t.b.d.
Tokyo, Japan