



Progress Report

DTP Subgroup

Lab Process Internal Combustion Engines

(LabProcICE)

Ispra, 25.09.2012



Overview

- 1) State of the working progress**
- 2) Issues on DTP level**
- 3) Validation phases 2 and 3**
- 4) Work in progress items / proposals / open issues**
- 5) Next steps**



Meetings since DTP-10

- several dates Draft working team meetings
 - 04.-06.09.2012 Brussels workshop
 - Evaluation of validation 2 results
 - Gtr draft open issues
 - Road load determination
- minutes: [LabProcICE-149](#)



Gtr draft – LabProclCE responsibilities

Annex 4: Road Load Determination & Dyno Setting

Annex 5: Test equipment, Calibrations

Annex 6: Test procedure, Test conditions

Annex 7: Calculations

Definitions

Open issues

LabProclCE open issues are listed in the gtr draft documents,
see comments of S. Dubuc (Drafting Coordinator)



Overview

- 1) State of the working progress
- 2) Issues on DTP level**
- 3) Validation phase 2 and 3
- 4) Work in progress items / proposals / open issues
- 5) Next steps



Test room and soak area temperature

Review of past DTP meetings:

- LabProclCE proposed **setpoint of 25°C**
 - harmonization with other regulations (e. g. gtr 2 &4)
- EU raised concern that 25°C is not representative
- Several studies evaluated impact of temperature on CO₂ results
 - TUEV Nord (on behalf UBA & BAST), UTAC, JRC

DTP-11:

EU position (see [DTP-11-02](#), No. 2)

- Introduction of regional correction factor intended
- Proposal for setpoint temperature: **22°C**



Test mass / vehicle selection / inertia classes

Review of DTP status:

Approach from T&E / NL / ICCT (DTP-10-02) includes:

(1) vehicle test mass

- improved definition (incl. optional equipment, luggage/payload)
- Testing worst and in addition best case (if requested by manufacturer)

(2) optional body parts influencing the aerodynamics

- Scrutiny reservation by Japan at DTP-10

(3) step-less inertia

Excluded:

Tyre selection → common criteria for TM_H / TM_L



Open issues

(a) Payload factors

LabProclCE proposal based on AEA report: **M1 15%, N1 35%**

→ supported by EU, see [DTP-11-02](#), No. 1

Reservations on N1 factor

→ Japanese ([LabProclCE-141](#)) and Indian ([LabProclCE-128](#)) proposals:

Alignment of the M1 and N1 payload factors (India esp. for LPW)

DTP-10 concluded:

→ All parties are requested to submit data to justify their counterproposals

→ Lack of data?



(b) Aerodynamic options

Review:

- LabProcICE proposal to base the vehicle selection on expected sales volumes was rejected → Japan proposed worst case criteria
- DTP-10 proposal: **include aerodynamics in TM_H / TM_L concept**

Last f2f meeting:

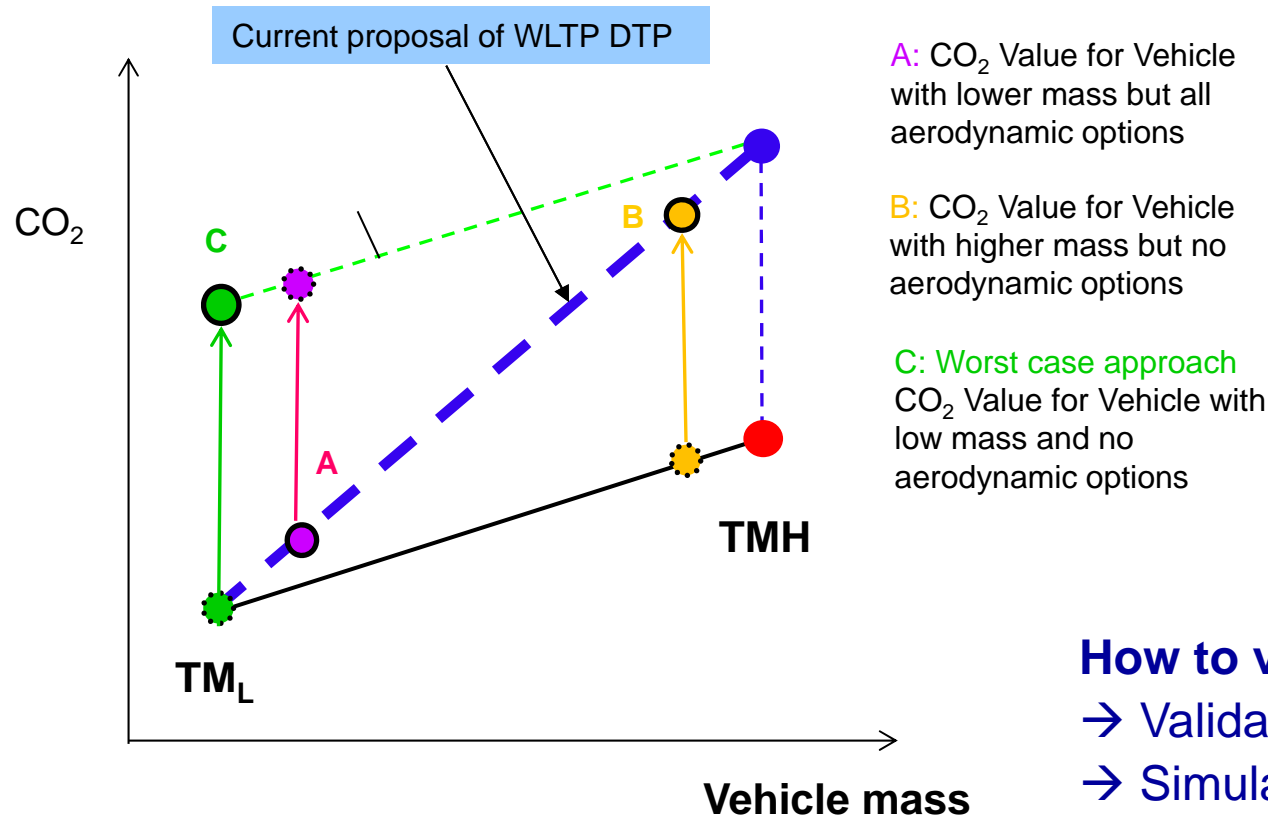
- **Japan accepted with restrictions in the family concept**
([LabProcICE-142](#))
- Minor aerodynamic options shall be included, but completely different body types shall be excluded
- Note: need to distinguish between fixed and variable aerod. options



Open questions: Is the influence of the aerodynamic options acceptable?

(mass and aerodynamic options are not physically connected)

3 Examples:



How to validate the influence?

- Validation phase 3?
- Simulation data?



(c) Tyre selection criteria

LabProclCE proposal:

- Tyre from the **worst rolling resistance class**
(defined by European tyre labeling directive, RR acc. to R117)
- No distinction of tyres within the worst class
- Approval extensions or the necessity of re-tests is no gtr issue

DTP-10: scrutiny reservation by Japan on RR classes

- final decision based on **ICCT study** ([LabProclCE-140](#) / [-147](#)) on the CO₂ impact of the RR classes → [DTP-11-xx](#)
- Automotive industry confirmed CO₂ range of study
- Japan position at DTP-11 expected
- EU ([DTP-11-02](#), No. 4): class width supported, add. criteria proposed



Proportional fan speed

ACEA presentation ([LabProcICE-135rev1](#))

→ no significant impact 120 instead of 132 kph (CO₂ and criteria pollutants)

→ Proposal: **10%** tolerance

Based on NL proposal ([LabProcICE-138](#)) LabProcICE agreed on:

"A current of air of variable speed shall be blown over the vehicle. The set point of the linear velocity of the air at the blower outlet shall be equal to the corresponding roller speed above roller speeds of 5 km/h. The deviation of the linear velocity of the air at the blower outlet shall remain within ± 5 km/h or **± 10 %** of the corresponding roller speed, whichever is greater."

→ Agreed by **EU** and **Japan**



Cycle, cycle allocation and mode construction

- key elements for harmonization
- influence measurement equipment, calculations and limits for criteria pollutants or electrical range

Order of decisions to be taken is essential and can not be inverted:

1. Decision on cycle allocation for Class 1 -3, max. vehicle speeds - for ICE, PHEV and EV
2. Decision on number of phases to be measured separately for gaseous pollutants, PM, electrical range etc.
3. Decision on Measurement Equipment with number of bags, number of filters, all lab procedures, calculations, tolerances



Mode construction for all tests – decision is open

Situation:

- In VP2 for ICE a baseline mode construction (cold start, 4 phases) was tested with optional (warm start, 4 phases).
 - Mode construction for EV is linked closely to ICE through emission measurements in CD and CS mode. Results have to be related to emission limits.
 - The finalizing of the gtr depends on clear boundary conditions.
- DTP is urgently requested to start the process for development of a common position on cycle allocation and mode construction.



Overview

- 1) State of the working progress
- 2) Issues on DTP level
- 3) Validation phases 2 and 3**
- 4) Work in progress items / proposals / open issues
- 5) Next steps



Validation phase 2

Evaluation of LabProclCE issues based on Validation 2 data base

→ LabProclCE in close cooperation with Heinz Steven

Last f2f meeting:

Review of preliminary results

→ ACEA informal document: LabProclCE-137rev1

→ Discussion of 9 from 21 issues

→ Most issues: data from all labs needed for final evaluation

DTP-11:

Evaluation examples → DTP-11-xx

(Test cell & soak area temperature tolerances, dilution factor)



Current validation 2 roadmap:

Testing until Sept. 2012 → already delayed until end October!

All data need to be included into data base before analysis

- Final data base version available mid-November?
- **Final analysis of all 21 evaluation issues until Jan 2013 is very ambitious!**
- LabProICE probably won't be able to present common proposals for all major issues at DTP-12
- Final agreements at DTP-13 still in line with roadmap?



Validation phase 3 - road load determination

Coordination: VTF – key responsibility Japan

Last f2f meeting:

Draft **validation test plan** presented by Japan ([LabProcICE-143](#))

Open questions:

- Validate only the technical feasibility of the drafted procedure or collect also data regarding open issues? (e. g. aerodynamic options)
- Evaluation of equivalence of the three proposed RLD measurement methods (EU position, [DTP-11-02](#), No. 6)
 - literature review?
 - VW: coast down vs. wind tunnel/flat belt, Ford: vs. torque meter



Overview

- 1) State of the working progress
- 2) Issues on DTP level
- 3) Validation phases 2 and 3
- 4) Work in progress items / proposals / open issues**
- 5) Next steps



RLD - Table of running resistances

Review:

Table is needed as an alternative to RLD measurement methods,
e. g. for N1 or multistage vehicles

Reservation by EU COM:

Default factors should represent worst case, use of table data should
not be an incentive → PSA proposal ([LabProICE-121](#)) not agreed

Next steps:

- PSA will try to provide together with JRC (and India?) a common proposal.
- Comparison with load coefficients of complete vehicles could show the right way to come to an accepted proposal



RLD – tyre condition

NL proposal ([LabProclCE-139](#)) supported in general by EU :

Tyre requirements

- Not specially conditioned or treated
- Run-in on the road (→ no shaping)
- Tread depth not less than 80% of the original over the full width
- Not older than 1 year after production date

Automotive industry objected especially run-in requirement

→ NL will consult experts from tyre industry

→ Issue will be kept on LabProclCE agenda



Overview

- 1) State of the working progress
- 2) Issues on DTP level
- 3) Validation phases 2 and 3
- 4) Work in progress items / proposals / open issues
- 5) Next steps**



Meeting schedule

- Small draft experts teams will continue work with DC
- Additional Tel/web conferences, e. g. for evaluation of validation phase 2 results
- Next face-to-face workshops:

14./15. November 2012, Brussels (ACEA)

Jointed meeting with LabProcEV: 16. November 2012



Thanks for your attention.

LabProICE contact:

Béatrice Lopez de Rodas - [beatrice.lopez\(at\)utac.com](mailto:beatrice.lopez@utac.com)

Konrad Kolesa - [konrad.kolesa\(at\)audi.de](mailto:konrad.kolesa@audi.de)

Stephan Redmann – [stephan.redmann\(at\)bmvbs.bund.de](mailto:stephan.redmann@bmvbs.bund.de)