

Meeting Minutes PMP Webconference

22th September 2022, 12:00-15:00 CET

DRAFT

1. Introduction & Welcome

ca. 91 participants were welcomed by Barouch Giechaskiel (BG, JRC, PMP Chairman) and Rainer Vogt (RV, OICA/Ford/Technical Secretary PMP). RV reviewed the meeting minutes of last PMP Meeting on 15.6.2022 which are available on the UNECE website. Comments may be sent to RV within the next two weeks

2. Overview of comments received on the draft Brakes GTR

Theo Grigoratos (TG JRC) listed topics for GTR revision received until Sep 16. The meeting focussed on these which need discussion. TG requested comments, if there were major objections until September 30. A detailed revised GTR text will be provided until October 4 PMP meeting.

7.2.1.1 Cooling air temperature. JRC proposal is to change to 23°C. Increase IBT and FBT by 5°C to compensate the 3°C increase.

7.2.3. Cooling airflow. JRC proposal to mandate the measurement of air flow (not air speed). As a result this would allow different duct diameters AFTER the end of the sampling plane

Q. by Carlos A. (LINK): Is air flow measurement allowed by air speed measurement and a defined area?

A. by TG: Might be o.k. To be checked with instrument manufacturers if this is possible.

7.4.2. Brake Enclosure design. Requirement of CFD verification. JRC proposes experimental verification air speed to be within +- 35% and omit CFD simulation.

Q. by Carlos A (LINK): Where to position the 9 positions?

Comment by Bob Anderson: There needs to be a certain distance from the wall.

TG. Comments to be considered and a proposal on the points will be presented in the next PMP meeting.

7.4.3. Design of the Sampling Tunnel: JRC proposes a symmetrical design of 650-750 mm.

Comment by Heinz Bacher (HB, OICA): There are more comments on the the sampling tunnel design by OICA in the OICA GTR comments word document (UNECE PMP server). For example, the Inlet/Outlet duct dimensions need to be looked at.

7.5. Design of the sampling tunnel. Comments were received that certain airflow measurements are inaccurate. JRC proposed that duct diameter decrease is allowed after the sampling plane for the flow measurement. The reduction shall be within some limits. JRC suggested that this point shall be finalized with the proposed change regarding the flow measurement.

Carlos A. (LINK): Does GTR need a closer specification for pressure measurement? A change in duct diameter, could change the pressure.

Michael A. (AVL): Mass flow and diameter are sufficient to calculate the air flow and to ensure for isokinetic sampling requirements.

9. WLTP Brake cycle. JAPAN could accept cycle without the extra high speed phase – like GTR15 WLTP. OICA stated the need for a solution for speed limited vehicles. EU-COM would recommend a harmonized GTR and if needed to implement possible different needs in the national regulations.

TG (JRC) stated that there is no possibility to change the drive cycle WLTP-Brake, for this first phase due to lack of supporting data.

Hiriyuki Yamadatdu (JASIC) stated that a written answer will be provided.

Alejandro Hortet (LINK) asked if changing the cycle would impact cooling adjustment and bedding: Cooling adjustment would stay with original Cycle 10, in any case.

12.1.4. Weighing Procedure. Based on feedback JRC proposes the replacement of the original weighing method to account weight difference close to 30 ug and become more robust. (see detailed text in JRC Word document on UNECE-PMP folder)

12.2.2.2 PCRf clarification was requested. JRC will add table for explanation

12.2.2.3 PN internal transfer line: Bending radius. Based on feedback JRC proposes to relax bending radius requirement to 10x di design of shorter transfer line.

12.3. Mass loss measurement and weighing scale requirements: currently is min 0.01g up to to 30 kg. JRC proposes to relax weighing room requirements (only for disc mass loss measurement) that this requirement becomes a recommendation, only. Stabilization of 1 hour before weighing should be added to address concerns about pads collecting humidity.

HB (OICA) commented: If stabilization it needs to be added before and after weighing. It is difficult to get a balance with the required accuracy. Such balance will require a climate controlled room. Discussion if the mass loss requirement is needed at all, if requirements are relaxed.

TG (JRC): “worst case” measurement of weight loss for regen braking might still be useful for monitoring and plausibility. Not for regulation.

Carlos A. (LINK): Consider relaxing to min. 0.1 g and sufficient scale to weigh the test part. Often there is no need for a 30 kg scale.

TG (JRC) replied that the mass loss for regen. braking measurement is very low, therefore a balance with min. 0.010 g is needed.

Overall Protocol: Sharing WLTP cycle through Excel file. Providing the entire WLTP Brake cycle at 1 Hz and three columns will fill 300 pages. A summary table is suggested collecting the different driving, acceleration and deceleration events. This will be 13 pages and could be in Annex A. It will allow to construct the cycle, if needed.

Annex B: could have the same data for 303 brake events.

TG (JRC) shared some initial thought on Brake families:

Definition should include: the brake mounted as integrated system on more than one vehicles. Brakes can be found as stand-alone parts in the aftermarket. Worst case could be defined based on the energy dissipated. Aftermarket could be categorized on friction material, discs, friction surface, etc. Brake discs could be categorized following ECE R90 more simplified. Propose to define reasonable families with OICA and CLEPA.

Jürgen von Wild (JvW, OICA): Concern was articulated that including the aftermarket brakes into the family will not work.

TG (JRC): The initial idea is that integrated system of OEMs would be one family. Aftermarket system could represent separate family. The topic needs further assessment.

M Vigouroux (CLEPA) commented that CLEPA will contribute by a written statement.

3.) Participant presentations

Paul Greening introduced to the OICA contribution. The PPT file needs to be seen in parallel with comments in the word document (see UNECE PMP folder).

The OICA presentation is structured by

- Cooling Air Temperature
- Brake Enclosure Design Proposal
- Definition of Road load Data
- Consideration of Engine Friction
- Method for Electrified Vehicles
- WL/DM Concept – need to update
- Bedding Procedure
- Multiple Filter Holder
- PN procedure
- Family building

and was presented and discussed by OEM Members of Ford, VW, Mercedes, BMW, Toyota/JAMA.

JvW (OICA): dimensions are preliminary recommendation

TG (JRC) have received OICA proposal. It is essentially one design only. How to be sure that it will work? Will the OICA study include experimental results?

Juan Camillo (OICA): Has not been tested yet, but it is a common design like other and reflects a compromise design. Going forward with a common design the enclosure will not be a factor of uncertainty, anymore.

David Miles (UK): Results are needed. If not available should stick to GTR and in the longer run it could be revised.

RV(OICA): there is a higher probability that a tighter defined geometry will result in lower variability. In the end there a better chance that the OICA proposal will work.

HB (OICA): Lots of differences were seen in ILS. It is not possible to change the geometry later. It will generate comparable results.

BG (JRC): OICA should double check the 650 mm requirement vs the 600 mm that was proposed and assess the difference between 650 and 750 mm during their theoretical study. OICA is open for discussion on the number. Topic not resolved.

TG (JRC): F-terms are not generally available for all for third parties

Anna Benkowitsch (OICA): WL/DM needs review.

TG (JRC): More data needed is needed for brake systems other than grey cast iron. Prefer to add specific categories at later stage, like first amendment to GTR.

4. Next steps

- Deadline for objections to the JRC proposal shall be submitted by September 30
- Next PMP meeting Oct 4, 12:00- 15:00
- Family building discussion is for later. To be finalized in December 22

5. Any other business

No comments