

BRAKE PARTICLE EMISSIONS

TASK FORCE
Development of a
Braking Test Cycle



ec.europa.eu/jrc



Joint Research Centre
the European Commission's
in-house science service

TASK FORCE COMPOSITION

- **Carlos AGUDELO (LINK Engineering)**
- **Sebastian GRAMSTAT (AUDI)**
- **Jarek GROCHOWICZ (FORD)**
- **Ilja PLENNE (TMD Friction)**
- **Francesco RICCOBONO (BREMBO)**
- **Matthew ROBERE (GENERAL MOTORS)**
- **Agusti SIN (ITT Motion Technologies)**
- **Theo GRIGORATOS (JRC)**

STEP 1 - DEVELOPMENT OF A BRAKING TEST CYCLE

- **WLTP Database Analysis (Concluded)**
- **Comparison of WLTP data with Existing Industrial Cycles (Concluded)**
- **Development of a first version of a New Braking Cycle if necessary (Definition of the nature of the cycle – urban or mixed - duration of the cycle, number of repetitions required, etc.) (Deadline: June 2017)**
- **Testing and Validation of the New Cycle - Possible round robin (Repeatability assessment of the test cycle and reproducibility assessment on other dynos) (Deadline: To be defined depending on the progress)**

DEVELOPMENT OF A BRAKING TEST CYCLE – DECISIONS

- **The selected profile shall be used for preconditioning and also bedding of the pads. However, since it will be challenging to stay within a reasonable timeframe maybe a good compromise will be required**
- **The cycle should include not only urban but also rural and motorway parts. However, urban applications will dominate the cycle based on the WLTP statistics presented previously at the PMP**
- **A WLTP based schedule would be the preferable option as it will be representative of real-world conditions**
- **Different LACT versions showed similar statistics to WLTP data but there is a concern that it doesn't reflect real world conditions when it comes to the temperature profile. However, there is a decision to look into it as a back-up plan**

DEVELOPMENT OF A BRAKING TEST CYCLE –STATUS

- **FORD is currently developing a WLTP based profile. This profile will first be validated internally and then will become available to the TF for further testing**
- **At the same time – and since LACT data from 6 companies show that there are not significant differences to WLTP in a statistical point of view – it was decided to also test a LACT short version as a back-up plan**
- **If both schedules prove to be more or less equivalent there is a general consensus among the group that WLTP based cycle should be adopted mainly due to its global character**
- **North America SAE has decided to hold up a similar activity they had been running and will wait for the outcome of the PMP group**

Stay in touch



JRC Science Hub:
ec.europa.eu/jrc



Twitter and Facebook:
@EU_ScienceHub



LinkedIn:
european-commission-joint-research-centre



YouTube:
JRC Audiovisuals



Vimeo:
Science@EC