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agenda item 3 (b))

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MOBILE AIRCONDITIONING TEST PROCEDURE

Status report

64th GRPE June 2012

Meetings MACTP

- Tuesday 05 June 2012 at United Nations, Geneva

- The Chairman, Mr. Rijnders (NL)
- Secretary Ms. Hosier (OICA),

  - All presentations will be available on the MACTP informal group website.
  - All documents relating to the European project are available on the European Commission CIRCA website.
    - http://circa.europa.eu/Members/irc/enterprise/wltp/library

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- 2 presentations on developments in MAC efficiency testing programs

1. Japan (Ministry of Land, Infrastructure, Transport and Tourism, (MLIT) (GRPE-IG-MACTP-04-02)

   Mr. Kajiwara

2. Europe MAC-TP pilot test phase (Consortium; TNO/TUG/LAT) (GRPE-IG-MACTP-04-03)

   Mr. Vonk (TNO)

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Presentation from Japan, Mr Kajiwara (MLIT)

The Japan study background is consumer awareness of fuel efficiency and the divergence between test results and actual fuel efficiency.

MLIT has a dual motivation to study MAC efficiency

a) consumer information and

b) promote manufacturers to improve MAC systems efficiency.

The MAC study involved the testing of 9 passenger cars at one laboratory, run over the dynamic JC08 cycle at various conditions (temperature / humidity) with a preconditioning of 30 minutes at 60 km/h constant speed. Testing conducted with MAC on, then MAC off to determine the impact due to MAC.

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The impact of a number of parameters investigated such as:

test cell condition, vehicle hot/cold condition, AC settings, compressor type (fixed/variable) and MAC system (dual/single). The deterioration rates on the fuel efficiency was investigated. Results show that fuel efficiency decreases as test cell specific enthalpy (related to temperature and relative humidity) increases. Fuel efficiency also decreases proportionally to compressor working ratio.

A number of temperature / humidity conditions were tested 2 or 3 times. MLIT reported that repeatability using the JC08 dynamic test is good when the preconditioning was used.

The European Commission asked more explanation of the repeatability analysis and correction factors for environmental conditions.

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Additional questionnaire conducted, covering 6000 people over 18 years old, who drive more than once a week, equally split male / female.

The results still under discussing regarding shaping the test itself and the information to be provided to the consumer. The questionnaire results are summarized in slide 13 of the MLIT presentation.

The Japanese test procedure will be further developed during 2012 and further information will be provided at the next MACTP meeting in Jan 2013.

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Report of the draft MAC test procedure and MAC pilot test phase (Consortium; TNO/TUG/LAT)

- Mr Willar Vonk (TNO) presented the update of the draft MAC test procedure and MAC pilot test phase on behalf of the consortium.

- The MAC efficiency project contains two test phases :
- A- Multi lab pilot test (to solve open issues) – testing now completed
- B- Multi lab (4) round robin with golden vehicle.

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Mr. Vonk noted:

-the results of the pilot study (phase A) will be presented to stakeholders on 11 June 2012

-he was unable to provide the results in advance of the stakeholder meeting.

-he promised to check with the stakeholders and if possible to share the information directly with MACTP.

Pilot phase involved 8 labs, 17 vehicles and 89 tests to address the open issues and further refine the draft test procedure

Open issues :

- Sensitivities to gearshift – GSI vs fixed shift points
- Soak temperature
- Drive cycle @ min/max speed (dyno power)
- Ambient temperature / humidity

The gearshift sensitivities have not been addressed as no data was provided.

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Next steps :

- European MAC efficiency meeting 11 June 2012 in Brussels on pilot phase results. Participation from MACTP members by webconference / audio also available, registration via Mr Vonk / Mr. Steininger in advance
- Fine tuning of test procedure
- Round Robin (July – Oct 2012)
- Procedure finalized and technical annex to regulation developed during end 2012 / early 2013.

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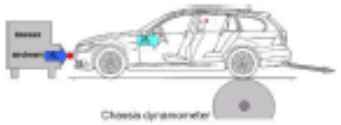

Time Schedule of the Pilot Test Phase

- Project started 16 August 2011

		2011				2012												2013	
WP	Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
100	Definition, preparation	◆	◆	◆	◆														
200	Phase A pilot testing				◆	◆	◆	◆	◆										
	Phase B round-robin												◆	◆	◆				
300	Procedure review					◆	◆	◆	◆	◆	◆	◆				◆			
400	Annex compilation															◆	◆	◆	◆
500	Management	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆

Current status

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Information from the regions

- Europe
  - Mr Steininger: the European Commission intends to introduce the MAC test procedure into Euro 6, that the values will be measured at Type Approval and the value communicated on the CoC (Certificate of Conformity).
  - DG-ENTR is responsible for the technical content, DG-CLIMA remains responsible for how the information is used. It might be that they consider a bonus/malus system to promote efficient MAC systems or a faster approach only looking into labelling.
  - Next step or parallel could be an update to Regulation 101. The EU draft could be shared with the MACTP group and discussed at the next meeting in Jan 2013.

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Information from the regions

- Japan
  - Mr. Kajiwara: concerns that the intention of the MACTP group was to adopt the EU MAC procedure as a global harmonized test procedure into a GTR.
  - Mr. Steininger explained that the idea is to adopt in the short term MAC efficiency requirements into Regulation 101 as an optional procedure.
  - The Chairman: reminded the group that the purpose of MACTP is to promote information exchange on regional/national activities and that WLTP is at a longer term a favorable route for considering global harmonized MAC efficiency procedures.

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Next Meeting

- The group request the GRPE to meet again during the January 2013 GRPE session for ½ day.