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(63th GRPE, 17-20 January 2012,  
agenda item 3 (b))

# MACTP

## MOBILE AIR-CONDITIONING TEST PROCEDURE

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Status report

63th GRPE January 2012

# Meetings MACTP

- Tuesday 17 January 2012 at United Nations, Geneva
- The Chairman, Mr Rijnders (NL)
- Secretary Ms Hosier (OICA), covering for Mr Bietenbeck (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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## Report on MAC activities in the Europe

- Mr Steininger (European Commission) presented an overview of the activities in the EU regarding direct and indirect GHGs :
  - regarding the MAC Directive 2006/40/EC (mandates working fluid GWP < 150 for passenger car MAC).
  - Operation of MACs leads to substantial, additional fuel consumption/CO2 emissions
  - Commission Communication of February 2007 on the integrated approach for reducing automotive CO2 emissions identifies MAC as target of regulation

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- The MAC efficiency project in the EU is handled by a consortium TNO/TUG/LAT who developed a draft type approval procedure, using the normal lab conditions (low cost solution and measuring MAC on / MAC off under steady state conditions).
- The pilot study will conclude during Q3 2012, regulation drafting in the EU during early 2013.
- There are a number of open issues on the test procedure being addressed during the pilot phase and discussions continue.
- The intention is that the Test procedure will be applied to Euro 6 vehicles and the MAC CO<sub>2</sub> emissions shall to be recorded separately.
- There is at the moment no intention to look at regulated emissions during MAC efficiency testing.

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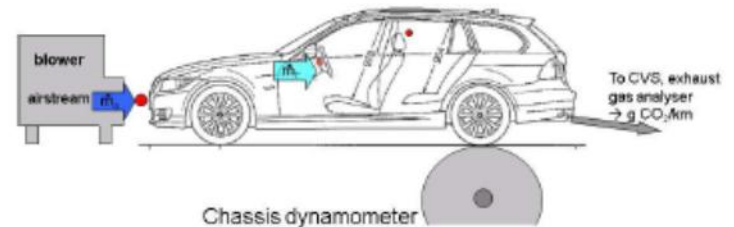
## Report of the draft MAC test procedure and MAC pilot test phase (Consortium; TNO/TUG/LAT)

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

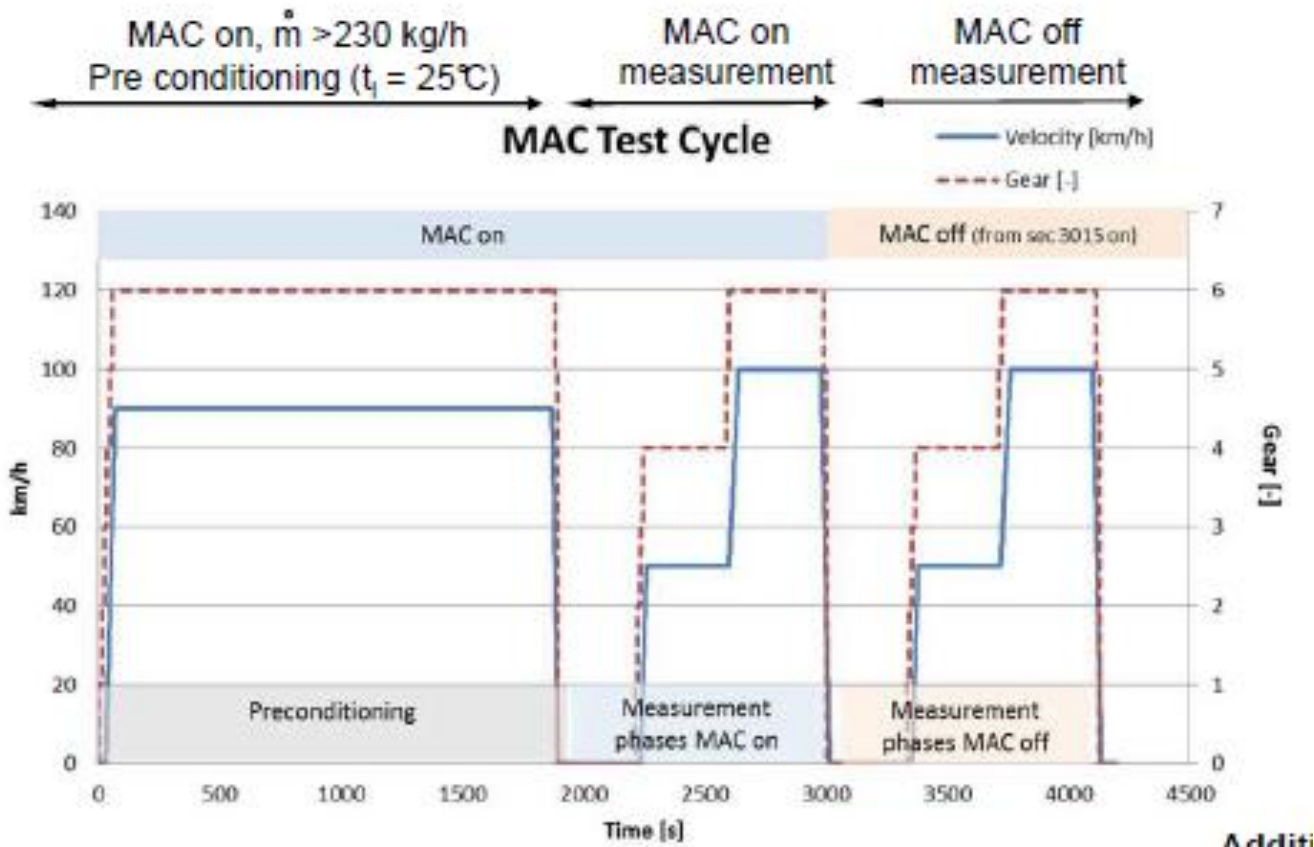
The MAC efficiency project contains two test phases :

- A- Multi lab pilot test (to solve open issues)
- B- Multi lab (4) round robin with golden vehicle.

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## Test cycle on a chassis dynamometer



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- Next steps :
  - European MAC efficiency meeting 16 April 2012 in Brussels regarding report out from pilot phase.
- Questions;
  - NL: Are N1 vehicles tested in test-pilot? **No.**
  - DE: Would a more dynamic cycle give different results? **In order to secure a precise result, hence the need to use steady state conditions rather than a dynamic cycle. The procedure should give a CO2 result which should be realistic.**
  - How could the MAC efficiency result be incorporated into CO2 legislation. **First focus on completing the pilot phase.**

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MAC Test Status in Korea based on proposed procedure by MACTP (National Institute of Environmental Research of Korea)

- Mr. Park –presentation
- Korea is actively participating in the MACTP activities and presented the status and early findings of the study
- Korea follows UN-ECE regulations, interested eco-innovations, including high efficiency MAC.
- NIER has already tested 5 vehicles to the pilot study from MAC operation. The vehicles covered the a range of MAC equipment from basic to advanced (classification as in the TNO report).



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- NIER followed the draft procedure contained in GRPE-61-21 with some exception
  - Cell temp / humidity control not perfect
  - Issues with setting max cabin air flow
  - No glazing corrections
- As a result of the testing, the following conclusions and recommendations were given:
  - Recommend 30 minutes preconditioning at 90 km/h to give sufficiently stable test conditions.
  - CO2 tolerance recommend 10% instead of 5%
- Further discussions followed on the difficulty of obtaining accurate data on the influence of glazing on the various parameter curves. Korea is still hopeful that manufacturers will be able to provide this data.

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## Information from the regions

- Japan
  - Testing is on-going on both MAC and real driving and so no data is available at this time. Data will be available in the June session
- China
  - not running any testing for the Pilot Phase, however, they remain interested to follow the EU activities. In case of a final UN-ECE regulation, they will investigate and consider implementation.
- US
  - US confirmed by email in advance of the meeting that they had no information to present.

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## Prolongation of the mandate

- been extended during the GRPE June 2011 session and this was confirmed by WP29 June 2011 for 3 years from the WP29 date, (i.e. June 2014).

## Next Meeting

- The group request the GRPE to meet again during the June 2012 GRPE session for ½ day.