Executive Summary of preliminary and progress report for NRMM

- Development of a global technical regulation concerning the approval of compression-ignition (C.I) engines to be installed in agricultural and forestry tractors and in non-road mobile machinery with regard to the emissions of pollutants by the engine.
- Amended as recommended by GRPE, now working document ECE/TRANS/WP.29/2007/43.
- Submitted to WP.29 and AC.3 for consideration.
Purpose of this progress report

1. Reporting on the evaluation performed as requested under the guidelines governing the development of a gtr
2. Request to proceed with the drafting of the gtr
3. Summary of work completed
Purpose and scope of gtr

Purpose
This regulation aims at providing a world-wide harmonized method for the determination of the levels of pollutant emissions from compression-ignition (C.I.) engines used in vehicles of category T and non-road mobile machinery in a manner which is representative of real world vehicle operation. The results can be the basis for the regulation of pollutant emissions within regional type-approval and certification procedures.

Scope
This regulation applies to the determination of the emissions of pollutants of compression-ignition (C.I.) engines to be used:
(a) in category T vehicles,
(b) in nonroad mobile machinery.
Benefit of gtr

• 1998 Global Agreement establishes process through which countries from all regions of the world can jointly develop global technical regulations … to continuously … decrease environmental pollution … of vehicles and related components and equipment

• Global reduction of emissions from non-road mobile machinery engines

• Global test procedure facilitates development and marketing of engines
Evaluation of possible impact of gtr

• As the requirements are due to be defined later, this evaluation cannot represent an impact assessment for this gtr.

• Thus the aim is to highlight the important effect which is expected from non-road machinery engine emission related legislation in selected areas of the world.
Harmonisation of national regulations

• At onset of work
  – Type approval in e.g. Europe
  – Self certification in e.g. USA
  – Differences in legal language

• Requiring
  – Review of existing regulations
  – Examination of the relevant regulations
  – Identification of relevant elements for gtr
  – Deciding on gtr’s structure
  – Drafting of gtr text
Work performed prior to NRMM WG

- US-EPA and EC worked towards a good level of regulative alignment, especially in view of scope, limit values and implementation dates
- Representative real world test cycle for non-road mobile machinery compression-ignition (C.I.) engines developed by international taskforce
- Now part of US and EU regulations
Examination of existing regulations, directives and international standards

- gtr should be based on best elements of these documents in order to develop a technologically valid, harmonized procedure
Intercomparison of reference documents

• Selection of a base procedure
• This procedure used as ordered list of subjects (topics, sub-topics, characteristics). The description of each subject compared with the corresponding subject in the other reference documents (Consideration of subjects from further regulations e.g. partial flow dilution)
• Resulting in 400 page comparison document; discussed during a number of WG meetings
• Evaluation resulted in the identification of the main topics to be included in the gtr; plus list of open issues.
Structure of NRMM gtr

- TRANS/WP.29/882 - "Guidelines regarding proposing and developing of global technical regulations (gtr) ". The gtr work is strictly based on the indications contained in this document.
- Within this frame the guiding idea of WG has been to develop the test procedure in a user-friendly way and following the logical line of work of an emission test.
- Step by step this first structure was then developed and adapted to the requirements of the different regulations
Emission calculations

• The WG agreed to use molar and mass based emission calculations in the gtr
• The 2 methodologies were derived in parallel to increase the transparency of each calculation step
• Both methodologies to be included in a separate annex in the gtr
Drafting of gtr

• Based on the structure and using the defined procedure elements a first basic draft gtr text was derived

• The following meetings showed the need to respond to different requests:
  – for countries with emerging emission legislation or for previously unregulated countries, recommendations and explanations help to understand the procedure
  – US rules have to be written in plain language
  – EU directives are legal text limited to the actual requirements.

• This resulted in the definition of a guidance document (following the example of the European noise directive)
Guidance document

• The legal part (= gtr) synthesizes the requirements and some indispensable explanations. The guidelines give all additional information that will allow a laboratory with less experience to run an emission test successfully.

• Guidance document could be published either in Appendix 1 or as separate Appendix 2 to established gtr.

• the guidance document alternates legal text with the relevant recommendations, thus forming a readable document on its own
PLANNED SCHEDULE OF WORK

• Continuation of the discussion of level 2 draft gtr text (presented early 2007) and deriving at level 3 document (meetings of NRMM editorial committee in September 2007, November 2007 and NRMM WG January 2008)
• Presentation of draft gtr (as 2. progress report) to GRPE January 2008
• Meeting of NRMM editorial committee April 2008 and NRMM WG June 2008
• Presentation of gtr to GRPE June 2008