

Request to extend the mandate amending UN GTR No. 2 and to develop new UN GTRs and UN Regulations in the area of Environmental and Propulsion unit Performance Requirements (EPPR) for light vehicles

A. Objectives

1. The objective of this proposal is to significantly extend the time for the working group to continue working on the mandate given by WP.29 (ECE/TRANS/WP29/AC.3/36) to establish amendments to UN Global Technical Regulation (UN GTR) No. 2 (Worldwide harmonized Motorcycle emissions Certification/test procedure (WMTC)) with respect to environmental and propulsion unit performance requirements, currently only applicable for two-wheel motorcycles in the framework of the 1998 Global Agreement. If the scope and the purpose of UN GTR No. 2 is not considered to be appropriate it will be proposed to amend the scope and purpose or develop new UN GTRs making reference to the relevant parts of UN GTR No. 2.
2. The objective is to develop requirements and/or test procedures under the 1998 agreement, and create synergies with the 1958 agreement UN regulations. Where possible, develop common requirements in the form of one or more UN Regulations and one or more UN GTRs as well as associated amendments and/or supplements;
3. To exchange information on current and future regulatory requirements in the area of environmental and propulsion unit performance requirements for "category 3 vehicles" or "L-category vehicles";
4. To minimize the differences between these regulatory requirements, with a view towards facilitating the development of light vehicles to comply with such internationally harmonised requirements;
5. Assessing the coherency with other regulatory requirements and groups, such as those regarding Worldwide harmonized Light vehicles Test Procedure (WLTP), Electric Vehicles and the Environment (EVE) and Vehicle Propulsion System Definitions (VPSD);
6. To build further on the output of the group after finalising its first mandate (January 2013 – January 2016). The group managed to work on a number of priority items and the goal of this next stage of work is to continue working in order to further progress in harmonising EPPR requirements for light vehicles.

B. Introduction

7. The proposal for setting up an informal working group regarding environmental and propulsion unit performance requirements (EPPR) for light vehicles operating under GRPE came at the initiative of the European Union, represented by the European Commission, DG GROW. The intention of setting up the group was announced during the GRPE meetings in January and June 2012 and in the WP.29 plenary session in June 2012. A mandate to start the activities in the EPPR informal group was endorsed by the World Forum for Harmonization of Vehicle Regulations (WP.29), in its November session 2012. The group had its first meeting in January 2013.
8. The working group is established under both the 1958 and 1998 Agreements to create the basis for the possible development of UN Regulations and UN GTRs in the area of EPPR. All global partners are invited to join the group and share experiences regarding setting relevant regulatory requirements as well as from the market.

9. The group aims replicating the successful approach of the UN GTR No 2 subgroup operating under GRPE, which facilitated an exchange of information among participants when each party had domestic regulatory requirements for an emission laboratory test cycle to measure exhaust gas emissions from a motorcycle after cold start. In 2011 a unique event took place in which contracting parties endorsed amendment 2 to UN GTR No. 2 putting forward global exhaust gas emission limit values for the type I emissions test for motorcycles (WMTC). Building on this success the process of international collaboration should continue to further harmonise requirements in the area of EPPR for the whole range of light vehicles.

10. The group will furthermore review technical progress of current and near future powertrain technology, including e.g. electrified powertrains and different fuel types and develop appropriate requirements for such technical progress.

11. The IWG started to work under its first mandate on harmonized test procedures for two-wheeled vehicles equipped with conventional combustion engine technology but the objectives also includes three- wheeled vehicles and other propulsion types in the next stage of work. It was decided that the scope of discussions does not cover light four-wheeled vehicles on emission related GTRs under the 98 Agreement in EPPR IWG. The scope of discussions for the UN Regulations under the 58 Agreement was not discussed yet and this may be discussed under GRPE or WP.29.. Regarding the three-wheeled vehicles, it is necessary to recognize the situation of present regulation in each country and then to consider the appropriate regulation. Nevertheless three-wheeled vehicles are regarded to be in the scope of work of the group. For the five considered GTRs and corresponding five UN Regulations draft proposals as well several amendments to deal with different levels of stringency were submitted to the group, but owing to time constraints three priority subjects were identified and selected for the first stage of work:

- a draft GTR on test types III (crankcase emissions) and test type IV (evaporative emissions);
- a draft GTR with regard to on-board diagnostics, UN stage 1;
- entire revision of GTR No 2 to dedicate separate sections to test types I (tailpipe emission after cold start), II (idle / free acceleration emissions) and VII (energy efficiency) and update the GTR for technical progress.

In this second stage the group is going to discuss the remaining draft proposals and to attempt to finalise the tasks identified in the base mandate.

For the remaining subjects in this second stage, the group will continue to first develop requirements for 2-wheeled vehicles (motorcycles and mopeds; categories 3-1, L-1 and 3-3 and L3) with conventional combustion engine technology. Progressively other vehicles categories and other propulsion unit types will be considered to be included.

C. Areas of work in the working group

12. The main activities of the group are proposed to be focussing on revising or establishing the following environmental performance verification test types:

- I Tailpipe emissions test after cold start;
- II Tailpipe emissions test at (increased) idle / free acceleration test;
- III Emission test of crankcase gases, including appropriate test procedures, if deemed necessary;
- IV Evaporative emissions test;
- V Durability testing of pollution control devices;
- (VI) (Cold ambient emissions. This test type is considered out of scope)
- VII Measurement of energy efficiency (CO₂ emissions, fuel consumption, electric energy consumption and electric range determination);
- VIII environmental on-board diagnostic verification tests

13. In addition the group should assess and develop functional aspects of on-board diagnostic (OBD) systems
14. In addition the group should assess and develop propulsion unit performance requirements for conventional vehicles equipped with combustion engines only as well as for advanced concepts such as electric and hybrid electric powertrains. Unified rules and test procedures to measure power and torque for this wide range of propulsion technologies fitted on light vehicles as well as unified measurement of maximum design vehicle speed and/or power for restricted light vehicles should be developed and agreed upon.
15. For both environmental and propulsion unit performance requirements all possible fuels should be taken into consideration: petrol, petrol-ethanol mixtures, diesel, biodiesel but also gaseous fuels such as CNG, LPG, Hydrogen and their blends.
16. In addition it should be assessed whether 'light vehicle' classification can be further optimised and refined. After an initial assessment by the EPPR IG, to clarify whether there are needs of these issues or not for the purpose of environmental requirements, the result should be reported to WP.29.

D. Existing regulations and directives

17. A stocktake of the regional regulations and directives applicable to L-category vehicles as well as UN Regulations Nos. 40, 47, 68, 83, 85, 101, UN GTR No. 2 and the work in progress regarding the world harmonised test protocol for light duty vehicles (WLTP) has been a first step on which the group based its work. Further consultation of developing regional /country specific legislation will be done to ensure coherence and meeting the needs of the Contracting Parties to the 1958 and 1998 Agreements.

E. Timeline

18. The plan is based on the draft roadmap and will regularly be reviewed and updated to reflect the latest situation on progress and the feasibility of the timeline.
- **11-12 June 2015:** .GRPE (71st session) official meeting of the informal working group. Presentation of roadmap and related programme management items to GRPE submitted for adoption.
 - **11-12 November 2015:** World Forum for Harmonization of Vehicle Regulations (167th session of WP.29), adoption of GRPE decision regarding the roadmap and related programme management items.
 - **2016-2020:** meetings of the working group, regularly reporting to GRPE and the Administrative Committees.
 - **Jan 2020:** presentation of a final report as an informal document at GRPE.
 - **2020:** possible adoption of UN Regulation(s) and Global Technical Regulation(s), with respective amendments.