

**Proposal for amendments to
ECE/TRANS/WP.29/GRPE/2023/03
UN Regulation No. [XXX] on uniform provisions
concerning the approval of light duty passenger and
commercial vehicles with regards to real driving
emissions (RDE)**

This document proposes some amendments to the above paper which OICA members request to be integrated at first adoption of the new Regulation. The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

Paragraph 1., amend to read:

"1. Scope and application

This Regulation aims at providing a worldwide harmonized method to determine the levels of Real Driving Emissions (RDE) of gaseous compounds and particles from light-duty vehicles.

This Regulation provides requirements for three levels of approval. One level requires testing and analysis based on a 4-phase WLTC (low, medium, high and extra-high) – this is called Level 1A. The second level requires testing and analysis based on a 3-phase WLTC cycle (low, medium and high) – this is called Level 1B. The third level requires testing and analysis based on both a 4-phase WLTC and a 3-phase WLTC cycle (low, medium and high) – this is called Level 2.

Level 2 shall be considered to be the “highest level of stringency” in the context paragraph 2. of Article 1 of the 1958 Agreement.

Where the requirements in this Regulation apply to either Level 1A or Level 1B only the Regulatory text uses "Level 1A only" or "Level 1B only" to denote the start of the level specific requirements.

This Regulation applies to the type approval of vehicles of categories M₁ with a reference mass not exceeding 2,610 kg and vehicles of categories M₂ and N₁ with a reference mass not exceeding 2,610 kg and a technical permissible maximum laden mass not exceeding 3,500 kg with regard to their Real Driving Emissions.

At the manufacturer's request, type approval granted under this Regulation may be extended from vehicles mentioned above to vehicles of categories M₁ with a reference mass not exceeding 2,840 kg and vehicles of categories M₂ and N₁ with a reference mass not exceeding 2,840 kg and a technical permissible maximum laden mass not exceeding 3,500 kg and which meet the conditions laid down in this Regulation.

Pure Electric Vehicles and Fuel Cell Vehicles are out of the scope of this Regulation."

Paragraph 6.1., amend to read:

"6.1. Compliance requirements

For vehicle types approved according to Level 1A of this Regulation, the final emissions at any possible RDE test performed in accordance with the requirements of this Regulation, shall be calculated for evaluation with a 4-phase WLTC.

For vehicle types approved according to Level 1B of this Regulation, the final emissions at any possible RDE test performed in accordance with the requirements of this Regulation, shall be calculated for evaluation with a 3-phase WLTC.

For vehicle types approved according to **Level 2** of this Regulation, the final emissions at any possible RDE test performed in accordance with the requirements of this Regulation, shall be calculated for evaluation with a 3-phase and a 4-phase WLTC.

Requirements for evaluation with 4 Phase WLTC

Requirements for evaluation with 3 Phase WLTC

The final emissions for the 4-phase analysis shall not be higher than any of the limits for the relevant criteria emissions (i.e. NOx and PN) found in Table 1A of paragraph 6.3.10. of the 01 series of Amendments to UN Regulation No. 154 on WLTP.

For vehicles with a diesel engine the final emissions for the 3-phase analysis shall not be higher than any of the limits for the relevant criteria emissions (i.e. NOx and PN) found in Table 1B of paragraph 6.3.10. of the 01 series of Amendments to UN Regulation No. 154 on WLTP.

The requirements of emission limits shall be fulfilled for the urban operation and the complete PEMS trip.

The RDE tests required by this Regulation provide a presumption of conformity. The presumed conformity may be reassessed by additional RDE tests.

The manufacturer shall ensure that all vehicles within the PEMS test family are compliant with UN Regulation No. 154 on WLTP, including conformity of production requirements.

The RDE performance shall be demonstrated by performing the necessary tests in the PEMS test family on the road operated over their normal driving patterns, conditions and payloads. The necessary tests shall be representative for vehicles operated on their real driving routes, with their normal load."

Paragraph 9.3., amend to read:

"9.3. RDE test to be performed

The RDE performance shall be demonstrated by testing vehicles on the road, operated over their normal driving patterns, conditions and payloads. RDE tests shall be conducted on paved roads (e.g. off-road operation is not permitted). An RDE trip shall be driven in order to prove compliance with the **associated** emission requirements, **i.e.:**

For Level 1A Approvals against a 4-Phase WLTC,

For Level 1B Approvals against a 3-Phase WLTC,

For Level 2 Approvals against both 3-Phase WLTC and 4-Phase WLTC."

Paragraph 10.7., amend to read:

- "10.7. Where applicable, separate data-sets shall be created for 3-phase and 4-phase evaluation. **For Level 2 Approvals** the data collected during the entire trip shall be the basis of the 4-phase RDE emission results, while the data with the exclusion of any data point with speed above 100 km/h shall be the basis of the 3-phase RDE trip validity and emission results calculations according to paragraphs 8 and 9 and Annexes 8, 9 and 11. For data analysis continuity Annex 10 will begin with the entire data set for both analyses."

Paragraph 10.7.1., amend to read:

- "10.7.1. In the case that that a single RDE trip **for a Level 2 Approval** is not capable of complying with all validity requirements described in paragraphs 9.1.1., 9.2. and 9.3., paragraphs 4.5.1. and 4.5.2. of Annex 8 and paragraph 4. of Annex 9 simultaneously, then a second RDE trip shall be done. The second trip shall be designed to meet either the 3 phase or 4 phase WLTC trip requirements not yet satisfied, as well as all other relevant trip validity requirements, but it is not necessary to satisfy again the 4 phase or 3 phase WLTC trip requirements previously met by the first trip."

Annex 3, amend to read:

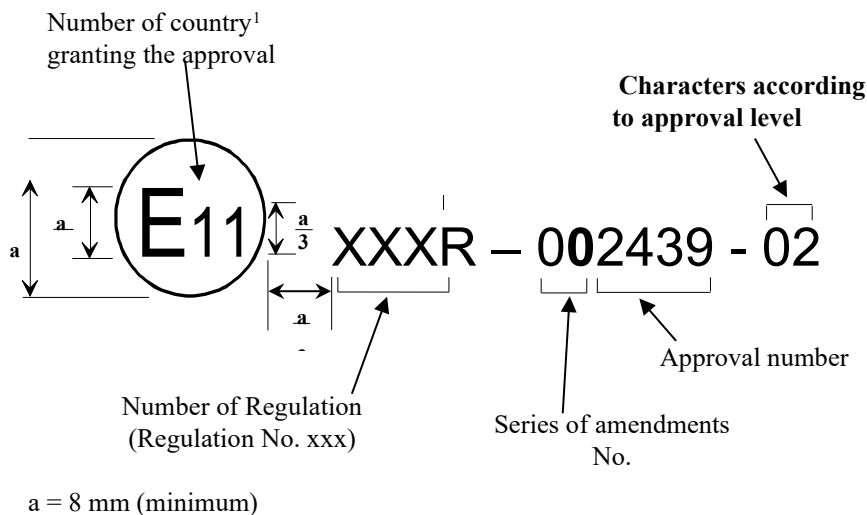
"Annex 3

Arrangement of the approval mark

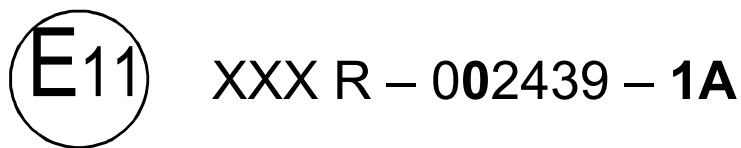
In the approval mark issued and affixed to a vehicle in conformity with paragraph 5. of this Regulation, the type approval number shall be accompanied by an alphanumeric character reflecting the level that the approval is limited to.

This annex outlines the appearance of this mark and gives an example how it shall be composed.

The following schematic graphic presents the general lay-out, proportions and contents of the marking. The meaning of numbers and alphabetical character are identified, and sources to determine the corresponding alternatives for each approval case are also referred.



The following graphic is a practical example of how the marking should be composed.



¹ Number of country according to footnote in paragraph 5.4.1. of this Regulation.

Annex 8, Paragraph 1., amend to read:

"1. Introduction

The Moving Averaging Window method shall be used to assess the overall trip dynamics. The test is divided in sub-sections (windows) and the subsequent analysis aims at determining whether the trip is valid for RDE purposes. The 'normality' of the windows shall be assessed by comparing their CO₂ distance-specific emissions with a reference curve obtained from the vehicle CO₂ emissions measured in accordance with the WLTP test.

For compliance with this Regulation, the method shall be applied using the 4-phase and the 3-phase WLTC requirements **as applicable.**"

II. Justification

1. Since RDE testing has been introduced in the European Union there has been criticism of the difficulties encountered when planning a valid RDE test.
 2. This situation would be worsened by introducing the requirement for a test to be suitable for analysis according to both 3-phase and 4-phase concepts.
 3. As levels have already been introduced in Regulation No. 154 and these are becoming accepted and understood by technical services and approval authorities, the introduction of these levels in this Regulation would be a clear alignment.
 4. As the temperature boundary conditions from this draft Regulation are already being transposed into European legislation, OICA members sees no need to differentiate between boundary conditions for the proposed levels.
 5. The inclusion of these few amendments would return the planning burden to that currently experienced in the EU, at least for markets which apply the 4-phase WLTP concept.
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