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1.1 EU Real Driving Emissions

1.1.1 Introduction

On-road emissions tests conducted by the Joint Research Centre (JRC) with Portable Emissions Measurement Systems (PEMS) show that the real-world nitrogen oxides (NO_x) emissions of Euro 3-6 light-duty diesel vehicles substantially exceed the regulatory emissions standards.

These findings are confirmed by independent PEMS on-road tests as well as remote sensing data. On-road emissions tests, furthermore, indicate that the distance-specific NO_x emissions of Euro 3-5 light-duty diesel vehicles show no reasonable reduction in the past decade. Preliminary analyses of Euro 6 light-duty vehicles confirm the technical potential of selective-catalytic reduction (SCR) systems to achieve more stringent emissions standards. However, the on-road NO_x emissions of Euro 6 diesel vehicles equipped with various emissions reduction technologies may exceed the emissions levels of current Euro 5 vehicles, if driven under similar conditions. The existing on-road tests unequivocally point to weaknesses in the current type-approval procedure and raise concerns whether the introduction of Euro 6 will considerably reduce NO_x emissions and other pollutant emissions of light-duty diesel vehicles.

To address these concerns, the European Commission set up in January 2011 the Real-Driving Emissions - Light-Duty Vehicles (RDE-LDV) working group with the aim of developing a complementary emissions test procedure for light-duty vehicles.

Source: JRC SCIENTIFIC AND POLICY REPORTS



1.1.2 Legal Implementation

Source:

EUROPEAN COMMISSION
ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL
Sustainable Growth and EU 2020
Sustainable Mobility and Automotive Industry
Brussels, 25/11/2013

EUROPEAN COMMISSION
ENTERPRISE AND INDUSTRY DIRECTORATE-GENERAL
Sustainable Growth and EU 2020
Sustainable Mobility and Automotive Industry
TCMV Meeting, 01/04/2014

1.1.2.1 Applying of the RDE Test Procedure

Where should the RDE test procedure be applied?

- a) Initial type approval test: basically in parallel to the type 1 test.
- b) Conformity of production test: no RDE testing is foreseen for the moment.
- c) In-use-conformity: basically in parallel to the type 1 test.
- d) (Member State surveillance testing: to be defined at a later stage since only to be applied after introduction of mandatory NTE emission limits)

1.1.2.2 Implementation

Next Steps	Targets
Definition of NTE limits for gaseous pollutants	2015 *
Drafting of in-service-conformity RDE procedure for gaseous emission	2015 *
Drafting of PN RDE test procedure	2015 *
PN NTE Limits	2015 *
Monitoring period	January 2016 *
Application of NTE limits ist for gaseous emissions (NO _x) and PN	September 2017/2018 *

* still under discussion



1.1.2.2.1 RDE for Gaseous Emissions

The new RDE procedure for assessing the gaseous pollutant emissions of light-duty vehicles shall be applied at type approval in two steps:

- Transition period without mandatory not-to-exceed (NTE) limits: As a test procedure with recording of the results in the CoC
 - ➔ from January 2016 new types only, small volume manufacturer are exempted)
- As a test procedure with mandatory not-to-exceed (NTE) emission limits
 - ➔ from 1 September 2017/18

The final quantitative RDE requirements may be introduced in two subsequent steps. An individual RDE test at the initial type approval cannot cover the full range of relevant traffic and ambient conditions. Therefore in-service-conformity testing is of utmost importance for ensuring compliance.

Small volume manufacturers: specific exemptions

1.1.2.2.2 RDE for Particulate Emissions (PN)

The RDE procedure for assessing PN pollutant emissions of light-duty vehicles shall be applied at type approval in one or two steps:

- As a test procedure
 - ➔ as soon as possible, but not later than September 2017 (PEMS or Random Cycle, no official decision; goal: PEMS)
- As a test procedure with mandatory not-to-exceed (NTE) emission limits
 - ➔ from 1 September 2017/18



1.1.3 Verifying Real Driving Exhaust Emissions – Annex IIIA

COMMISSION REGULATION (EU) No .../..
 of XXX

amending Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6)

March 2015

See: [Euro 6](#)

1.1.3.1 Introduction

This Annex describes the procedure to verify the Real Driving Emissions (RDE) performance of light passenger and commercial vehicles.

1.1.3.2 General Requirements

2.1 Throughout its normal life the emissions of a vehicle type approved according to Regulation (EC) No 715/2007 as determined according to the requirements of this Annex and emitted at a RDE test performed in accordance to the requirements of this Annex, shall not be higher than the following not-to-exceed (NTE) values:

$$NTE_{pollutant} = CF_{pollutant} \times \text{EURO-6},$$

where Euro-6 is the applicable Euro 6 emission limit of Table 2 of Annex I to Regulation (EC) 715/2007 and $CF_{pollutant}$ the conformity factor for the respective pollutant specified as follows:

	NO _x	PN	CO ¹	THC	THC+NO _x
CF _{pollutant}	tbd	tbd	-	-	-

Notes:

¹ CO emissions shall only be measured and recorded at RDE tests.

2.2. The manufacturer shall confirm compliance with point 2.1 by completing the certificate set out in Appendix 9.



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AVL



2.3. The RDE tests required by this Annex at type approval and during the lifetime of a vehicle provide a presumption of conformity with the requirement set out in point 2.1. The presumed conformity may be refuted by additional RDE tests, in accordance with point 3.3.

2.4. Member States shall ensure that vehicles can be tested with PEMS on public roads in accordance with the procedures under their own national law, while respecting local road traffic legislation and safety requirements.

2.5. Manufacturers shall ensure that vehicles can be tested with PEMS by an independent party on public roads fulfilling the requirements of point 2.4, e.g. by making available suitable adapters for manifold exhaust pipes, granting access to ECU signals and making the necessary administrative arrangements. If the respective PEMS test is not required by this Regulation the manufacturer may charge a reasonable fee as set out in Article 7(1) of Regulation (EC) No 715/2007.

1.1.3.2.1 RDE Test to be performed

3.1. The following requirements apply to PEMS tests referred to in Article 3(10), second subparagraph.

3.1.1. The exhaust mass flow shall be determined by measurement equipment functioning independently from the vehicle and no vehicle ECU data shall be used in this respect for type approval.

3.1.2. If the approval authority is not satisfied with the data quality check and validation results of a PEMS test conducted according to Appendices 1 and 4, the approval authority may consider the test to be void. In such case, the test data and the reasons for voiding the test shall be recorded by the approval authority.

3.1.3. Reporting and dissemination of RDE test information

3.1.3.1. A technical report prepared by the manufacturer in accordance with Appendix 8 shall be made available to the approval authority.

3.1.3.2. The manufacturer shall ensure that the following information is made available on a publicly accessible website without costs:

3.1.3.2.1. By entering the vehicle type approval number and the information on type, variant and version as defined in sections 0.10 and 0.2 of the vehicle's EC certificate of conformity, the unique identification number of a PEMS test family to which a given vehicle emission type belongs, as set out in point 5.2 of Appendix 7.



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- 3.1.3.2.2. By entering the unique identification number of a PEMS test family:
- the full information as required by point 5.1 of Appendix 7,
 - the lists described in points 5.3 and 5.4 of Appendix 7;
 - the results of the PEMS tests as set out in points 6.3 of Appendix 5 and 3.9 of Appendix 6 for all vehicle emission types in the list described in point 5.4 of Appendix 7.

3.1.3.3. Upon request, without costs and within 30 days, the manufacturer shall make available the technical report referred to in point 3.1.3.1 to any interested party.

3.1.3.4. Upon request, the type approval authority shall make available the information listed under points 3.1.3.1 and 3.1.3.2 within 30 days of receiving the request. The type approval authority may charge a reasonable and proportionate fee, which does not discourage an inquirer with a justified interest from requesting the respective information or exceed the internal costs of the authority for making the requested information available.

1.1.3.2.2 General Requirements

4.1. The RDE performance shall be demonstrated by testing vehicles on the road operated over their normal driving patterns, conditions and payloads. The RDE test shall be representative for vehicles operated on their real driving routes, with their normal load.

4.2. The manufacturer shall demonstrate to the approval authority that the chosen vehicle, driving patterns, conditions and payloads are representative for the vehicle family. The payload and altitude requirements, as specified in points 5.1 and 5.2, shall be used ex-ante to determine whether the conditions are acceptable for RDE testing.

4.3. The approval authority shall propose a test trip in urban, rural and motorway environments meeting the requirements of point 6. For the purpose of trip selection, the definition of urban, rural and motorway operation shall be based on a topographic map.

4.4. If for a vehicle the collection of ECU data influences the vehicle's emissions or performance the entire PEMS test family to which the vehicle belongs as defined in Appendix 7 shall be considered as non-compliant. Such functionality shall be considered as a 'defeat device' as defined in Article 3(10) of Regulation (EC) 715/2007.

1.1.3.2.3 Boundary Conditions

5.1. Vehicle payload and test mass



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5.1.1. The vehicle's basic payload shall comprise the driver, a witness of the test (if applicable) and the test equipment, including the mounting and the power supply devices.

5.1.2. For the purpose of testing some artificial payload may be added as long as the total mass of the basic and artificial payload does not exceed 90% of the sum of the “mass of the passengers” and the “pay-mass” defined in points 19 and 21 of Article 2 of Commission Regulation (EU) No 1230/2012(*).

(*) Commission Regulation (EU) No 1230/2012 of 12 December 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council (OJ L 353, 21.12.2012, p. 31).

5.2. Ambient conditions

5.2.1. The test shall be conducted under ambient conditions laid down in this section. The ambient conditions become “extended” when at least one of the temperature and altitude conditions is extended.

5.2.2. Moderate altitude conditions: Altitude lower or equal to 700 meters above sea level.

5.2.3. Extended altitude conditions: Altitude higher than 700 meters above sea level and lower or equal to 1300 meters above sea level.

5.2.4. Moderate temperature conditions: Greater than or equal to 273K (0°C) and lower than or equal to 303K (30°C)

5.2.5. Extended temperature conditions: Greater than or equal to 266 K (-7°C) and lower than 273 K (0°C) or greater than 303 K (30°C) and lower than or equal to 308 K (35°C)

5.2.6. By way of derogation from the provisions of points 5.2.4 and 5.2.5 the lower temperature for moderate conditions shall be greater or equal to 276K (3°C) and the lower temperature for extended conditions shall be greater or equal to 271K (-2°C) between the start of the application of binding NTE emission limits as defined in section 2.1 and until five years after the dates given in paragraphs 4 and 5 of Article 10, of Regulation (EC) No 715/2007.

5.3. Dynamic conditions

The rest of the text is not available



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No News and Updates in the Demo Version