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**COMMISSION REGULATION (EU) .../...**

**of **XXX****

**implementing Regulation (EU) No 595/2009 of the European Parliament and of the Council as regards the determination of the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles and amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EU) No 582/2011**

(Text with EEA relevance)

# COMMISSION REGULATION (EU) .../...

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**implementing Regulation (EU) No 595/2009 of the European Parliament and of the Council as regards the determination of the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles and amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EU) No 582/2011**

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information<sup>1</sup> and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC<sup>2</sup>, and in particular Article 4(3) and Article 5(4)(e) thereof,

Having regard to Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive), and in particular Article 39(7) thereof,

Whereas:

- (1) Regulation (EC) No 595/2009 is one of the separate regulatory acts under the type-approval procedure laid down by Directive 2007/46/EC.
- (2) Regulation (EC) No 595/2009 requires that the Commission adopts measures to certify CO<sub>2</sub> emissions and fuel consumption of heavy duty vehicles. Therefore, the present Regulation aims at setting certification requirements for obtaining accurate information about new heavy-duty vehicles placed on EU market.
- (3) Article 11 of the Directive 2007/46/EC allows for the performance of virtual testing instead of physical tests. In addition, it sets out the necessary requirements for the purpose of the whole vehicle type-approval, as well as, the content of the certificate of the conformity.
- (4) Commission Regulation (EU) No 582/2011 sets out requirements for the approval of vehicles with an approved engine system with regard to emissions and access to

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<sup>1</sup> REGULATION (EC) No 595/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC (OJ L 188, 18.7.2009, p. 1)

<sup>2</sup> DIRECTIVE 2007/46/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (OJ L 263, 9.10.2007, p. 1)

vehicle repair and maintenance information, as well as, for the approval of vehicles with regard to emissions and access to vehicle repair and maintenance information. A license to perform simulations to establish CO<sub>2</sub> emissions and fuel consumption of a vehicle will be required to obtain mentioned above approvals.

- (5) Emissions from lorries, buses and coaches currently represent around 25% of road transport CO<sub>2</sub> emissions and are set to increase by 2030. In order to reach the target of 60% reduction of CO<sub>2</sub> emissions from transport by 2050, effective measures to curb emissions from heavy-duty sector need to be introduced.
- (6) (6) Until now, there has been no regulatory procedure to measure CO<sub>2</sub> emissions and fuel consumption from heavy-duty vehicles, rendering it impossible to introduce additional measures be it on the European or national level that would encourage the introduction of more energy efficient vehicles. In addition, the transparency of the market has been hindered thus reducing the possibility for consumers to choose vehicles best suited for their needs.
- (7) The heavy-duty sector is very diversified, with a significant number of different vehicle types and models as well as with a high degree of customisation. After performing an in-depth analysis of available options, the Commission concluded that the most cost efficient solution to assess CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles would be by means of a simulation tool. This would permit obtaining unique data for each produced vehicle at the lowest cost.
- (8) (8) Since there was no software available on the market to meet the legislator requirements for the purpose of the assessment of CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles, the Commission developed dedicated software which could be used for the regulatory purpose.
- (9) That software consists of a simulation tool, which is a publically available, open source, downloadable and executable software, which can be used to calculate CO<sub>2</sub> emissions and fuel consumption of heavy duty vehicles. The tool uses input data of the components, separate technical units and systems which have a significant impact on the CO<sub>2</sub> emissions and fuel consumption of vehicles – engine, gearbox and additional driveline components, axles, tyres, aerodynamics and auxiliaries.
- (10) In order to enable a realistic assessment, the software has been equipped with a number of functionalities: test cycles specific for different vehicles classes, options to simulate vehicles with different payloads and fuels.
- (11) In order to allow deriving CO<sub>2</sub> emissions and fuel consumption emission related properties for the components, separate technical units and systems having an impact on the performance of heavy-duty vehicles, provisions for the certification of such properties should be set out.
- (12) In parallel to the certification provisions, 'standard values' for several components, separate technical units and systems which can be used instead of deriving the CO<sub>2</sub> and fuel consumption related properties by means of testing should also be set out. This is a viable alternative for companies manufacturing parts in small numbers in order to optimise costs related to testing. Standard values are set out in a conservative way so as to encourage component manufacturers to apply for certification.
- (13) The CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units and systems should be used as input data for the simulation tool in order to simulate vehicle performance. The simulations should be performed by vehicle manufacturers at the moment of production of a vehicle.

- (14) Provisions should also be put in place for the license of the vehicle manufacturers' processes for calculation of the CO<sub>2</sub> emissions and fuel consumption of vehicles. The process of handling and application of data by the vehicle manufacturers should be certified and closely monitored by the approval authorities in order to ensure that the simulations are conducted in a correct manner. In addition, a number of simulations should be repeated by the approval authorities in order to verify the correct use of the data and simulation tool.
- (15) In order to ensure that the results declared by the suppliers of parts and vehicle manufacturers are correct, provisions for conformity of simulation tool operation as well as of CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems should be set out.
- (16) Recognizing the importance of the proper functioning of the simulation tool for a correct assessment of vehicles emissions, the Commission should maintain and update the software when necessary.
- (17) In order to ensure sufficient lead time for the national authorities and the industry, the certification obligations should be implemented gradually starting with the vehicles which are the biggest contributors to CO<sub>2</sub> emissions of the heavy-duty sector.
- (18) Directive 2007/46/EC and Commission Regulation (EU) 582/2011 should therefore be amended accordingly.
- (19) The measures provided for in this Regulation are in accordance with the opinion of the Technical Committee Motor Vehicles,

HAS ADOPTED THIS REGULATION:

## CHAPTER 1 GENERAL PROVISIONS

### *Article 1*

#### **Subject matter**

This Regulation complements the legal framework for the type-approval of motor vehicles and engines with regard to emissions and vehicle repair and maintenance information established by Regulation (EU) No 582/2011 by laying down the rules for issuing licenses to operate a simulation tool with a view to determining CO<sub>2</sub> emissions and fuel consumption of new vehicles and for operating that simulation tool and declaring the emissions and consumption values thus determined.

### *Article 2*

#### **Scope**

1. This Regulation shall apply to vehicles of categories M<sub>1</sub>, M<sub>2</sub>, N<sub>1</sub> and N<sub>2</sub> as defined in Annex II to Directive 2007/46/EC with a reference mass exceeding 2 610 kg and to all vehicles of categories M<sub>3</sub> and N<sub>3</sub>, as defined in that Annex.

It shall also apply to variants and versions in accordance with the fourth paragraphs of Article 2 of Regulation (EC) No 595/2009.

2. In case of multi-stage type-approvals of vehicles referred to in paragraph 1, this Regulation shall apply only to base vehicles equipped at least with a chassis, engine, transmission, axles and tyres.
3. This Regulation shall not apply to vehicles to which Regulation (EC) No 715/2007 of the European Parliament and of the Council<sup>3</sup> applies pursuant to Article 2(2) of that Regulation.
4. This Regulation shall not apply to off-road vehicles, special purpose vehicles and off road special purpose vehicles as defined, respectively, in points 2.1., 2.2. and 2.3. of Part A of Annex II to Directive 2007/46/EC.

### *Article 3*

#### **Definitions**

For the purposes of this Regulation, the following definitions shall apply:

- (1) "pre-processing tools" means software, provided by the Commission, which compiles testing results of an engine and air-drag, verifies its consistency and, by additional calculations and formatting, transforms the data into a format appropriate for the simulation tool;
- (2) "CO<sub>2</sub> emissions and fuel consumption related properties" means specific properties derived for a component, separate technical unit and system which determine the impact of the part on the CO<sub>2</sub> emissions and fuel consumption of a vehicle;
- (3) "input file" means a file containing information on the CO<sub>2</sub> emissions and fuel consumption related properties of a component family, separate technical unit family or system family which is used by the simulation tool for the purpose of determining CO<sub>2</sub> emissions and fuel consumption of a vehicle;
- (4) "transmission" means a device consisting of at least of two shiftable gears, changing torque and speed with defined ratios;
- (5) "torque converter" means a hydrodynamic start-up component as separate component of the driveline with serial power flow or transmission with included start-up component with serial or parallel power flow that adapts speed between engine and wheel and provides torque multiplication;
- (6) "other torque transferring component" or "OTTC" means a rotating component attached to the driveline which produces torque losses dependent on its own rotational speed;
- (7) "additional driveline component" or "ADC" means a rotating component of the driveline which transfers or distributes power to other driveline components and produces torque losses dependant on its own rotational speed;
- (8) "axle" means a central shaft for a rotating wheel or gear as drive axle of a vehicle;
- (9) "air drag" means characteristic of a vehicle configuration regarding aerodynamic force acting on the vehicle opposite to the direction of air flow and determined as a

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<sup>3</sup> Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information (OJ L 171, 29.6.2007, p. 1).

product of the drag coefficient and the cross sectional area for zero crosswind conditions;

- (10) "auxiliaries" means vehicle components including an engine fan, steering system, electric system, pneumatic system and air conditioning (AC) system whose CO<sub>2</sub> emissions and fuel consumption properties have been defined in Annex VII;
- (11) "component family", "separate technical unit family" or "system family" means a manufacturer's grouping of components, separate technical units or systems, respectively, which through their design have similar CO<sub>2</sub> emissions and fuel consumption related properties;
- (12) "parent component", "parent separate technical unit" or "parent system" means a component, separate technical unit or system, respectively, selected from a component, separate technical unit or system family, respectively, in such a way that its CO<sub>2</sub> emissions and fuel consumption related properties will be representative for that component family, separate technical unit family or system family.

#### *Article 4*

### **Vehicle groups**

For the purpose of this Regulation, motor vehicles shall be classified in vehicle groups in accordance with Table 1 in Annex I.

#### *Article 5*

### **Electronic tools**

1. For the purpose of this Regulation, the Commission shall provide free of charge the following electronic tools in the form of downloadable and executable software:
  - (a) a simulation tool;
  - (b) pre-processing tools;
  - (c) hashing tool.

The Commission shall maintain the electronic tools and provide modifications and updates to those tools.
2. The Commission shall make the electronic tools referred to in paragraph 1 available through a publicly available dedicated electronic distribution platform.
3. The simulation tool shall be used for the purposes of determining CO<sub>2</sub> emissions and fuel consumption of new vehicles. It shall be designed to operate on the basis of input information relating to the characteristics of the vehicles concerned relevant for the purposes of determining their CO<sub>2</sub> emissions and fuel consumption, as specified in Annex IX, as well as information on the CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units and systems of the vehicles concerned and referred to in Article 12(1).
4. The pre-processing tools shall be used for the purpose of verification of the testing results and performing additional calculations relating to simulation tool input information and converting the input information in a format used by the simulation tool.

A dedicated pre-processing tool shall be used by the manufacturer after performing the tests referred to in point 4 of Annex III for engines and in point 3 of Annex VI for air-drag.

5. The hashing tools shall be used for establishing an unequivocal association between certified CO<sub>2</sub> emission and fuel consumption related properties of a component, separate technical unit or system and its certification document, as well as for establishing an unequivocal association between a vehicle and its manufacturer's records file as referred to in Appendix 1 to Annex I.

## CHAPTER 2

### LICENSE TO OPERATE THE SIMULATION TOOL FOR THE PURPOSES OF TYPE-APPROVAL WITH REGARD TO EMISSIONS AND VEHICLE REPAIR AND MAINTENANCE INFORMATION

#### *Article 6*

##### **Application for a license to operate the simulation tool with a view to determining CO<sub>2</sub> emissions and fuel consumption of new vehicles**

1. The vehicle manufacturer shall submit to the approval authority an application for a license to operate the simulation tool referred to in Article 5(3) with a view to determining CO<sub>2</sub> emissions and fuel consumption of new vehicles belonging to one or more vehicle groups ('license').
2. The application for a license shall take the form of an information document drawn up in accordance with the model set out in Appendix 1 to Annex II.
3. The application for a licence shall be accompanied by a documentation package containing an adequate description of the processes set up by the manufacturer for the purposes of determining CO<sub>2</sub> emissions and fuel consumption with respect to all the vehicle groups concerned, as set out in point 1 of Annex II.

It shall also be accompanied by the technical report drafted by the technical service after performing an assessment in accordance with point 2 of Annex II.

4. The vehicle manufacturer shall submit the application for a license drawn up in accordance with paragraphs 2 and 3 to the approval authority at the latest together with the application for an EC type-approval of a vehicle with an approved engine system with regard to emissions and access to vehicle repair and maintenance information pursuant to Article 7 of Commission Regulation (EU) No 582/2011, or with the application for an EC type-approval of a vehicle with regard to emissions and access to vehicle repair and maintenance information pursuant to Article 9 of that Regulation.

#### *Article 7*

##### **Administrative provisions for the granting of the license**

1. The approval authority shall grant the license if the manufacturer proves that the requirements laid down in Annex II are met with respect to the vehicle groups concerned.

Where the requirements laid down in Annex II are met only with respect to some of the vehicle groups specified in the application for a license, the license shall be granted only with respect to those vehicle groups.

2. The license shall be issued in accordance with the model set out in Appendix 2 to Annex II.

#### *Article 8*

##### **Subsequent changes to the license**

1. A license shall be extended to vehicle groups other than those with respect to which concerned by the application for a license has been granted, as referred to in Article 6(1) if the vehicle manufacturer proves that the processes set up by him for the purposes of determining CO<sub>2</sub> emissions and fuel consumption of vehicle groups covered by the license fully meet the requirements of Annex II also in respect of the other vehicle groups.
2. The vehicle manufacturer shall apply for an extension of the license in accordance with Article 6 (1), (2) and (3).
3. The vehicle manufacturer shall notify the approval authority without delay of any changes to the processes set up by him for the purposes of determining CO<sub>2</sub> emissions and fuel consumption with respect to the vehicle groups covered by the licence that occur after the granting of the license and may have a non-negligible effect on the accuracy, reliability and stability of those processes.  
Any envisaged changes shall be notified to the approval authority without delay.
4. Upon receipt of the notification referred to in paragraph 3, the approval authority shall inform the vehicle manufacturer whether processes affected by the changes continue to be covered by the license granted, whether the license must be extended in accordance with paragraphs 1 and 2 or whether a new license should be applied for in accordance with Article 6.
5. Where the changes are not covered by the license, the manufacturer shall, within one month of receipt of the information referred to in paragraph 4, apply for an extension of the licence or for a new licence. If the manufacturer does not apply for an extension of the licence or a new licence within that deadline, or if the application is rejected, the licence shall be withdrawn.

### CHAPTER 3

#### OPERATION OF THE SIMULATION TOOL WITH A VIEW TO DETERMINING THE CO<sub>2</sub> EMISSIONS AND FUEL CONSUMPTION FOR THE PURPOSES OF REGISTRATION, SALE AND ENTRY INTO SERVICE OF NEW VEHICLES

#### *Article 9*

##### **Obligation to determine and declare CO<sub>2</sub> emissions and fuel consumption of new vehicles**

1. A vehicle manufacturer shall determine the CO<sub>2</sub> emissions and fuel consumption of each new vehicle using the latest available version of the simulation tool referred to in Articles 5(3).



2. The vehicle manufacturer shall record the results of the simulation performed in accordance with paragraph 1 in the manufacturer's records file drawn up in accordance with the model set out in Appendix 1 to Annex I.

With the exception of the cases referred to in the second subparagraph of Article 20(3), and in the second subparagraph of Article 22(7), second subparagraph, any subsequent changes to the manufacturer's records file shall be prohibited.

3. The manufacturer shall create a cryptographic hash of the manufacturer's records file using the hashing tool referred to in Article 5(5).
4. Each vehicle to be registered, sold or to enter into service shall be accompanied by the customer information file drawn up by the manufacturer in accordance with the model set out in Appendix 2 to Annex I.

Each customer information file shall include an imprint of the cryptographic hash of the manufacturer's records file referred to in paragraph 3.

5. Each vehicle to be registered, sold or to enter into service shall be accompanied by a certificate of conformity including an imprint of the cryptographic hash of the manufacturer's records file referred to in paragraph 3.

The first subparagraph shall not apply in the case of vehicles approved in accordance with Article 24 of Directive 2007/46/EC.

#### *Article 10*

##### **Malfunctioning of the simulation tool**

1. In case of modifications or updates to the simulation tool, the vehicle manufacturer shall start using the modified or updated simulation tool no later than 3 months after the modifications and updates were made available on the dedicated electronic distribution platform.
2. If the CO<sub>2</sub> emissions and fuel consumption of new vehicles cannot be determined in accordance with Article 9(1) due to a malfunction of the simulation tool, the vehicle manufacturer shall notify the Commission thereof without delay by means of the dedicated electronic distribution platform
3. If the CO<sub>2</sub> emissions and fuel consumption of new vehicles cannot be determined in accordance with Article 9(1) due to a malfunction of the simulation tool, the vehicle manufacturer shall perform the simulation as soon as the modifications or updates of the tool have been released. Until the modifications or updates of the tool have been released the manufacturer shall be exempted from the obligations of Article 9 for the vehicles for which the determination of fuel consumption and CO<sub>2</sub> emissions remains impossible.

#### *Article 11*

##### **Accessibility of the simulation tool input and output information**

1. The manufacturer's records file together with certificates on CO<sub>2</sub> emissions and fuel consumption related properties of the components, systems and separate technical units shall be stored by the vehicle manufacturer for at least 20 years after the production of the vehicle and shall be available to the approval authority and the Commission at their request.

2. Upon request by a competent authority of a Member State or by the Commission, the vehicle manufacturer shall provide, within 15 working days, the manufacturer's records file.
3. Upon request by a competent authority of a Member State or by the Commission, the approval authority which granted the license in accordance with Article 7, or certified the simulation tool input information relating to a component, separate technical unit or system in accordance to Article 17 shall provide, within 10 working days, the information document referred to in Article 6(2) and in Article 16(2),

#### CHAPTER 4

### CO<sub>2</sub> EMISSIONS AND FUEL CONSUMPTION RELATED PROPERTIES OF COMPONENTS, SEPARATE TECHNICAL UNITS AND SYSTEMS

#### *Article 12*

#### **Components, separate technical units and systems relevant for the purposes of determining CO<sub>2</sub> emissions and fuel consumption**

1. The simulation tool input information referred to in the second subparagraph of Article 5(2) shall include information relating to the CO<sub>2</sub> emissions and fuel consumption related properties of the following components, separate technical units and systems:
  - (a) engines;
  - (b) transmissions;
  - (c) torque converters;
  - (d) other torque transferring components;
  - (e) additional driveline components;
  - (f) axles;
  - (g) body or trailer air drag;
  - (h) auxiliaries;
  - (i) tyres.
2. The CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units and systems referred to in points (b) to (h) of paragraph 1 shall be based either on the certified values determined, for each component family, separate technical unit family or system family, in accordance with Article 14 or, in the absence of the certified values, on the standard values determined in accordance with Article 13.
3. The CO<sub>2</sub> emissions and fuel consumption related properties of engines shall be based on the values certified for each engine family in accordance with Annex III. The CO<sub>2</sub> emissions and fuel consumption emission related properties of tyres shall be based on the values certified in accordance with Annex VIII.
4. In the case of a base vehicle referred to in Article 2(2), the CO<sub>2</sub> emissions and fuel consumption related properties of components, separate technical units and systems referred to in points (g) and (h) of paragraph 1 with which the base vehicle is not equipped shall be based on the standard values.

### *Article 13*

#### **Standard values**

1. The standard values for transmissions shall be determined in accordance with Appendix 10 of Annex IV.
2. The standard values for torque converters shall be determined in accordance with Appendix 11 of Annex IV.
3. The standard values for other torque-transferring components shall be determined in accordance with Appendix 12 of Annex IV.
4. The standard values for additional driveline components shall be determined in accordance with Appendix 13 of Annex IV.
5. The standard values for axles shall be determined in accordance with Appendix 3 of Annex V.
6. The standard values for a body or trailer air drag shall be determined in accordance with Appendix 8 of Annex V.
7. The standard values for auxiliaries shall be determined in accordance with Annex VII.

### *Article 14*

#### **Certified values**

1. The values determined in accordance with paragraphs 2 to 9 may be used by the vehicle manufacturer as the basis for the simulation tool input information if they are certified in accordance with Article 17.
2. The certified values for engines shall be determined in accordance with point 4 of Annex IV.
3. The certified values for transmissions shall be determined in accordance with point 3 of Annex IV.
4. The certified values for torque converters shall be determined in accordance with point 4 of Annex IV.
5. The certified values for other torque-transferring component shall be determined in accordance with point 5 of Annex IV.
6. The certified values for additional driveline components shall be determined in accordance with point 6 of Annex IV.
7. The certified values for axles shall be determined in accordance with point 4 of Annex V.
8. The certified values for a body or trailer air drag shall be determined in accordance with point 3 of Annex VI.
9. The certified values for tyres shall be determined in accordance with point 4 of Annex VI

### *Article 15*

#### **Family concept regarding components, separate technical units and systems using certified values**

1. Subject to paragraphs 2 to 5, the certified values determined for a parent component, parent separate technical unit or parent system shall be valid, without further testing, for all family members in accordance with the family definition as set out in:
  - Appendix 3 to Annex III as regards the family concept of engines;
  - Appendix 6 to Annex IV as regards the family concept of transmissions, torque converters, other torque transferring component and additional driveline components;
  - Appendix 4 to Annex V as regards the family concept of axles;
  - Appendix 5 to Annex VI as regards the family concept of body.

For tyres, a family shall consist of one tyre type only.

2. The CO<sub>2</sub> emissions and fuel consumption related properties of the parent component, parent separate technical unit or parent system shall not be better than the properties of any member of the same family.
3. The manufacturer shall provide the approval authority with evidence that the parent component, separate technical units or system fully represents the component family, separate technical unit family or system family.

If, in the framework of testing for the purposes of the second subparagraph of Article 16(3) the technical service determines that the selected parent component, parent separate technical unit or parent system does not fully represent the component family, separate technical unit family or system family, an alternative reference component, separate technical units or system may be selected by the technical service, tested and shall become a parent component, parent separate technical unit or parent system.

4. Upon request of the manufacturer, and subject to the agreement by the approval authority, the CO<sub>2</sub> emissions and fuel consumption related properties of a specific component, specific separate technical unit or specific system other than a parent component, parent separate technical unit or parent system, respectively, may be indicated in the certificate on CO<sub>2</sub> emissions and fuel consumption related properties of the component family, separate technical unit family or system family.

The CO<sub>2</sub> emissions and fuel consumption related properties of that specific component, separate technical unit or system shall be determined in accordance with Article 14.

5. Where the CO<sub>2</sub> emissions and fuel consumption related properties of the specific component, specific separate technical unit or specific system, as determined in accordance with paragraph 4, are worse than those of the parent component, parent separate technical unit or parent system, respectively, the manufacturer shall exclude it from the existing family and assign it to a different family, or create a new family and define it as a new parent component, parent separate technical unit or parent system for that family.

#### *Article 16*

#### **Application for a certification of the CO<sub>2</sub> emissions and fuel consumption related properties of components, separate technical units or systems**

1. The application for certification of the CO<sub>2</sub> emissions and fuel consumption related properties of the component family, separate technical unit family or system family shall be submitted to the approval authority.
2. The application for certification shall take the form of an information document drawn up in accordance with the model set out in:
  - Appendix 2 to Annex III as regards engines;
  - Appendix 2 to Annex IV as regards transmissions;
  - Appendix 3 to Annex IV as regards torque converters;
  - Appendix 4 to Annex IV as regards other torque transferring component;
  - Appendix 5 to Annex IV as regards additional driveline components;
  - Appendix 2 to Annex V as regards axles;
  - Appendix 3 to Annex VI as regards air drag;
  - Appendix 2 to Annex VIII as regards tyres.
3. The application for certification shall be accompanied by an explanation of the elements of design of the component family, separate technical unit family or the system family concerned which have a non-negligible effect on the CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units or systems concerned.

The application shall also be accompanied by the relevant test reports issued by a designated technical service and by a statement of compliance issued by an approval authority pursuant to point 1 of Annex X of Directive 2007/46/EC.

#### *Article 17*

#### **Administrative provisions for the certification of CO<sub>2</sub> emissions and fuel consumption related properties of components, separate technical units and systems**

1. If all the applicable requirements are met, the approval authority shall certify the values relating to the CO<sub>2</sub> emissions and fuel consumption related properties of the component family, separate technical unit family or system family concerned.
2. In the case referred to in paragraph 1, the approval authority shall issue a certificate on CO<sub>2</sub> emissions and fuel consumption related properties using the model set out in:
  - Appendix 1 to Annex III as regards engines;
  - Appendix 1 to Annex IV as regards transmissions, torque converters, other torque transferring component and additional driveline components;
  - Appendix 1 to Annex V as regards axles;
  - Appendix 1 to Annex VI as regards air drag;
  - Appendix 1 to Annex VIII as regards tyres.
3. The approval authority shall grant a certification number in accordance with the numbering system set out in:
  - Appendix 6 to Annex III as regards engines;
  - Appendix 8 to Annex IV as regards transmissions, torque converters, other torque transferring component and additional driveline components;

- Appendix 5 to Annex V as regards axles;
- Appendix 8 to Annex VI as regards air drag;
- Appendix 1 to Annex VIII as regards tyres.

The approval authority shall not assign the same number to another component family, separate technical unit family or system family.

4. The approval authority shall create a cryptographic hash of the input file, by means of the hashing tool referred to in Article 5. The approval authority shall imprint that hash on the certificate on CO<sub>2</sub> emissions and fuel consumption related properties.

#### *Article 18*

#### **Subsequent changes relevant for the certification of CO<sub>2</sub> emissions and fuel consumption related properties of components, separate technical units and systems**

1. The person who has lodged the application for certification shall notify the approval authority of any changes to the design or the manufacturing process of components, separate technical units or systems concerned which occur after the certification of the values relating to the CO<sub>2</sub> emissions and fuel consumption related properties of the relevant component family, separate technical unit family or system family pursuant to Article 17 and which may have a non-negligible effect on the CO<sub>2</sub> emissions and fuel consumption related properties of those components, separate technical units and systems.
2. Upon receipt of the notification referred to in paragraph 1, the approval authority shall inform the manufacturer whether or not the components, separate technical units or systems affected by the changes continue to be covered by the certificate issued, or whether additional testing in accordance with Article 13 is necessary in order to verify the impact of the changes on the CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units or systems concerned.
3. Where the components, separate technical units or systems affected by the changes are not covered by the certificate, the manufacturer shall, within one month of receipt of that information from the approval authority, apply for a new certification. If the manufacturer does not apply for a new licence within that deadline, or if the application is rejected, the certificate shall be withdrawn..

### CHAPTER 5

#### CONFORMITY OF SIMULATION TOOL OPERATION AND INPUT INFORMATION

#### *Article 19*

#### **Responsibilities of the approval authority and the manufacturer with regard to the conformity of simulation tool operation**

1. The person who has lodged the application for certification shall take the necessary measures to ensure that the application of the processes set up for the purposes of determining CO<sub>2</sub> emissions and fuel consumption for all the vehicle groups covered by the license granted pursuant to Article 7 or the extension to the license pursuant to Article 8(1) continues to be adequate for that purpose.

2. The approval authority shall perform, on an annual basis, an assessment as referred to in point 2 of Annex II in order to verify if the application of the processes set up by the manufacturer for the purposes of determining CO<sub>2</sub> emissions and fuel consumption for all the vehicle groups covered by the license granted pursuant to Article 7 or the extension to the license pursuant to Article 8(1) continues to be adequate.
3. The approval authority shall ensure that at least 1% of the simulations performed by the manufacturer is verified in the framework of the assessment referred to in paragraph 2. The verification shall include at least repetition of the simulations performed by the manufacturer.
4. Any approval authority may at any time perform verifications of the components, separate technical units and systems at any of the vehicle manufacturer's facilities. The vehicle manufacturer shall provide the approval authority within 15 working days with all the relevant documents, samples and other materials necessary to perform an assessment of the component, separate technical unit or system.

#### *Article 20*

##### **Remedial measures for the conformity of simulation tool operation**

1. Where the approval authority finds, pursuant to Article 19(2), that the processes set up by the manufacturer for the purposes of determining the CO<sub>2</sub> emissions and fuel consumption of the vehicle groups concerned are applied in a way which is not in accordance with the license or with this Regulation and which may lead to an incorrect determination of the CO<sub>2</sub> emissions and fuel consumption of the vehicles concerned, the approval authority shall request the manufacturer to submit a plan of remedial measures no later than 30 calendar days after receipt of the request from the approval authority.

Where the manufacturer demonstrates that further time is required to investigate the reason for the discrepancy in order to submit a plan of remedial measures, an extension of up to 30 days may be granted by the approval authority.

2. The remedial measures shall apply to all vehicle groups which have been covered by the licence. In addition, they shall be extended to vehicle groups which are not covered by the license but have been covered by a different licence and are likely to be affected.
3. The approval authority shall within 30 calendar days of the receipt of the plan of remedial measures approve or reject the plan of remedial measures. The approval authority shall notify the manufacturer and all the other Member States of its decision to approve or reject the plan of remedial measures.

The approval authority may require the manufacturer to issue a new manufacturer's records file, a new customer information file and a new certificate of conformity reflecting the changes to the processes referred to in paragraph 1.

4. The manufacturer shall be responsible for the execution of the approved plan of remedial measures.
5. If the plan of the remedial measures has been rejected by the approval authority, or if the approval authority establishes that the remedial measures are not being correctly applied, it shall take the necessary measures, including the withdrawal of the licence, to ensure conformity of simulation tool operation.

**Responsibilities of the manufacturer and approval authority with regards to conformity of CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems**

1. The manufacturer shall take the necessary measures in accordance to Annex X to Directive 2007/46/EC to ensure that the CO<sub>2</sub> emissions and fuel consumption related properties of all the produced components, separate technical units and systems listed in Article 13 do not deviate from the values certified pursuant to Article 17.

Those measures shall also include the following procedures for the conformity of certification of the CO<sub>2</sub> emissions and fuel consumption related properties of the following component, separate technical unit or system shall apply:

- Appendix 4 to Annex III as regards engines;
- point 7 of Annex IV as regards transmissions;
- point 6 of Annex V as regards axles;
- Appendix 7 to Annex VI as regards body or trailer air drag;
- point 5 of Annex VIII as regards tyres.

Where a deviation from the values certified pursuant to Article 17 is identified as a result of the conformity of certification procedures, the manufacturer shall immediately inform the approval authority.

2. The manufacturer shall provide on an annual basis conformity of CO<sub>2</sub> emissions and fuel consumption related properties testing reports containing the results of the procedures referred to in paragraph 1 to the approval authority which certified the values relating to the CO<sub>2</sub> emissions and fuel consumption related properties of the component family, separate technical unit family or system family concerned. The manufacturer shall make the test reports shall be made available to the Commission upon request.
3. The manufacturer shall ensure that at least one in every 25 procedures as referred to in the second subparagraph of paragraph 1, or at least one procedure per year, relating to a component family, separate technical unit family or system family is supervised by a technical service designated by the approval authority. The designated technical service shall not be the same as the one which participated in the certification of CO<sub>2</sub> emissions and fuel consumption related properties of the component family, separate technical unit family or system family concerned pursuant to Article 16.
4. The approval authority which has certified the values relating to the CO<sub>2</sub> emissions and fuel consumption related properties may perform verifications of the components, separate technical units and systems concerned at any of the manufacturer's facilities in order to verify whether the CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems listed in Article 13 deviate from the values certified pursuant to Article 17.

The manufacturer shall provide the approval authority, within 15 working days of the request by the approval authority, with all the relevant documents and samples necessary to perform an assessment.



## Article 22

### **Remedial measures for the conformity of CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems**

1. Where the approval authority finds, pursuant to Article 21, that the measures taken by the manufacturer to ensure that the CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems listed in Article 13 do not deviate from the values certified pursuant to Article 17 are not adequate, the approval authority shall request the manufacturer to submit a plan of remedial measures no later than 30 calendar days after receipt of the request from the approval authority.

Where the manufacturer demonstrates that further time is required to investigate the reason for the discrepancy in order to submit a plan of remedial measures, an extension of up to 30 days may be granted by the approval authority.

3. The remedial measures shall be extended also to component families, separate technical unit families or system families which are also likely to be affected.
4. The approval authority shall within 30 calendar days of the receipt of the plan of remedial measures approve or reject the plan of remedial measures. The approval authority shall notify the manufacturer and all the other Member States of its decision to approve or reject the plan of remedial measures.
5. The manufacturer shall be responsible for the execution of the approved plan of remedial measures.
6. The manufacturer shall keep a record of every component, separate technical unit or system recalled and repaired or modified and of the workshop which performed the repair. The approval authority shall have access to those records on request during the execution of the plan of the remedial measures and for a period of 5 years after the completion of its execution.
7. If the plan of remedial measures has been rejected by the approval authority, or if the approval authority establishes that the remedial measures are not being correctly applied, it shall take the necessary measures, including the withdrawal of the certificate, to ensure conformity of CO<sub>2</sub> emissions and fuel consumption related properties of all the components, separate technical units and systems.

If the plan of remedial measures has been rejected, the approval authority may require all the vehicle manufacturers who installed the components, separate technical units and systems affected to issue a new manufacturer's records file, a new customers information file and a new certificate of conformity reflecting the changes to the CO<sub>2</sub> emissions and fuel consumption related properties of those components, separate technical units and systems.

## CHAPTER 6

### FINAL PROVISIONS

## Article 23

### **Transitional provisions**

1. For new vehicles of vehicle groups 4, 5, 9 and 10, as defined in Table 1 of Annex I, the obligations referred to in Article 8 shall apply from 1 January 2019.

2. For new vehicles of vehicle groups 1, 2, and 3, as defined in Table 1 of Annex I, the obligations referred to in Article 8 shall apply from 1 September 2019.
3. For new vehicles of vehicle groups 11, 12 and 16, as defined in Table 1 of Annex I, the obligations referred to in Article 8 shall apply from 1 January 2020.

*Article 24*

**Amendment to Directive 2007/46/EC**

Annexes I, III, IV, IX and XV to Directive 2007/46/EC are amended in accordance with Annex X to this Regulation.

*Article 25*

**Amendment to Regulation (EU) No 582/2011**

Regulation (EU) No 582/2011 is amended as follows:

- (1) In Article 3(1), the following subparagraph is added:

„In order to receive an EC type-approval of a vehicle with an approved engine system with regard to emissions and vehicle repair and maintenance information, or an EC type-approval of a vehicle with regard to emissions and vehicle repair and maintenance information, the manufacturer shall also demonstrate that the requirements laid down in Article 6 and Annex II to Commission Regulation (EU) 2017/... [HDV CO2]\*\* for the respective vehicle group in accordance with Article 23 of that Regulation are met.

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\*\* Commission Regulation (EU) 2017/... of ... implementing Regulation (EU) No 595/2009 of the European Parliament and of the Council as regards the certification of the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles and amending Directive 2007/46/EC of the European Parliament and of the Council and Commission Regulation (EU) No 582/2011 (OJ L ..., ..., p. ...).“;

- (2) Article 8 is amended as follows:

- (a) in paragraph 1, the first subparagraph is replaced by the following:

„If all the relevant requirements pursuant to this Regulation and Regulation (EU) 2017/... [HDV CO<sub>2</sub>] are met, the approval authority shall grant an EC type-approval of a vehicle with an approved engine system with regard to emissions and access to vehicle repair and maintenance information and issue a type-approval number in accordance with the numbering system set out in Annex VII to Directive 2007/46/EC.“;

- (b) in paragraph 1a, point (d) is replaced by the following:

„(d) all other exceptions set out in points 3.1 and 5.1 of Annex VII to this Regulation, points 2.1 and 6.1 of Annex X to this Regulation, points 2, 4.1, 5.1, 7.1, 8.1 and 10 of Annex XIII to this Regulation, and point 1 of Appendix 6 to Annex XIII to this Regulation apply;“(c) in paragraph 1a, the following point is added:

„(e) the requirements laid down in Article 6 and Annex II to Regulation (EU) 2017/... [HDV CO2] for the respective vehicle group in accordance with Article 23 of that Regulation are met.“;

(3) Article 10 is amended as follows:

(a) in paragraph 1, the first subparagraph is replaced by the following:

„If all the relevant requirements pursuant to this Regulation and Regulation (EU) 2017/... [HDV CO2] are met, the approval authority shall grant an EC type-approval of a vehicle with regard to emissions and access to vehicle repair and maintenance information and issue a type-approval number in accordance with the numbering system set out in Annex VII to Directive 2007/46/EC.“;

(b) in paragraph 1a, point (d) is replaced by the following:

„(d) all other exceptions set out in points 3.1 and 5.1 of Annex VII to this Regulation, points 2.1 and 6.1 of Annex X to this Regulation, points 2, 4.1, 5.1, 7.1, 8.1 and 10 of Annex XIII to this Regulation, and point 1 of Appendix 6 to Annex XIII to this Regulation apply;“;

(c) in paragraph 1a, the following point is added:

„(e) the requirements laid down in Article 6 and Annex II to Regulation (EU) 2017/... [HDV CO2] for the respective vehicle group in accordance with Article 23 of that Regulation are met.“.

#### *Article 26*

#### **Entry into force**

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in the Member States in accordance with the Treaties.

Done at Brussels,

*For the Commission*  
*The President*  
*Jean-Claude Juncker*