

Commission Regulation (EU) 2017/2400 of 12 December 2017 implementing Regulation (EC) 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) 2017/2400

of 12 December 2017

implementing Regulation (EC) 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 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>(1)</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)<sup>(2)</sup>, 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. It empowers the Commission to adopt measures relating to CO<sub>2</sub> emissions and fuel consumption of heavy duty vehicles. The present Regulation aims at establishing measures for obtaining accurate information on CO<sub>2</sub> emissions and fuel consumption of new heavy-duty vehicles placed on the Union market.
- (2) Directive 2007/46/EC sets out the necessary requirements for the purpose of a whole vehicle type-approval.
- (3) Commission Regulation (EU) No 582/2011<sup>(3)</sup> sets out requirements for the approval of heavy-duty vehicles with regard to emissions and access to vehicle repair and maintenance information. Measures for the determination of CO<sub>2</sub> emissions and fuel consumption of new heavy-duty vehicles should be part of the type-approval system

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instituted by this Regulation. A licence to perform simulations to establish CO<sub>2</sub> emissions and fuel consumption of a vehicle will be required to obtain the approvals mentioned above.

- (4) Emissions from lorries, buses and coaches, which are the most widely representative categories of heavy-duty vehicles, currently represent around 25 % of road transport CO<sub>2</sub> emissions and are expected to increase even further in the future. In order to reach the target of a 60 % reduction of CO<sub>2</sub> emissions from transport by 2050, effective measures to curb emissions from heavy-duty vehicles need to be introduced.
- (5) Until now, no common method has been laid down by Union legislation to measure CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles, rendering it impossible to objectively compare performance of vehicles or to introduce measures, whether on the Union or national level, that would encourage the introduction of more energy-efficient vehicles. As a consequence, there has been no transparency in the market as regards the energy-efficiency of heavy-duty vehicles.
- (6) The heavy-duty vehicle sector is very diversified, with a significant number of different vehicle types and models as well as with a high degree of customisation. The Commission has conducted an in-depth analysis of the available options to measure CO<sub>2</sub> emissions and fuel consumption of those vehicles and concluded that in order to obtain unique data for each produced vehicle at the lowest cost, CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles should be determined using simulation software.
- (7) In order to reflect the diversity of the sector, heavy-duty vehicles should be divided into groups of vehicles with a similar axle configuration, chassis configuration and technically permissible maximum laden mass. Those parameters define the purpose of a vehicle and should therefore determine the set of test cycles used for the purpose of the simulation.
- (8) Since there is no software available on the market to meet the requirements necessary for the purposes of the assessment of CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles, the Commission should develop dedicated software to be used for those purposes.
- (9) That software should be publically available, open-source, downloadable and executable. It should include a simulation tool for the calculation of CO<sub>2</sub> emissions and fuel consumption of specific heavy-duty vehicles. The tool should be conceived to use, as input, the data reflecting the characteristics of the components, separate technical units and systems which have a significant impact on the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles – engine, gearbox and additional driveline components, axles, tyres, aerodynamics and auxiliaries. The software should also include pre-processing tools to be used for the verification and pre-processing of the simulation tool input data relating to the engine and vehicle air drag, as well as a hashing tool to be used for the encryption of the simulation tool input and output files.
- (10) In order to enable a realistic assessment, the simulation tool should be equipped with a number of functionalities allowing for a simulation of vehicles with different payloads and fuels over specific test cycles assigned to a vehicle depending on its application.

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- (11) Recognizing the importance of the proper functioning of the software for the correct determination of vehicles' CO<sub>2</sub> emissions and fuel consumption and of keeping up with technological progress, the Commission should maintain the software and update it whenever necessary.
- (12) The simulations should be performed by vehicle manufacturers before registration, sale or entry into service of a new vehicle in the Union. Provisions should also be put in place for the licence of the vehicle manufacturers' processes for calculation of the CO<sub>2</sub> emissions and fuel consumption of vehicles. The processes of handling and application of data by the vehicle manufacturers for the purposes of calculation of the CO<sub>2</sub> emissions and fuel consumption of vehicles using the simulation tool should be assessed and closely monitored by the approval authorities in order to ensure that the simulations are conducted in a correct manner. Provisions should therefore be put in place requiring vehicle manufacturers to acquire a licence for the operation of the simulation tool.
- (13) The CO<sub>2</sub> emissions and fuel consumption related properties of the components, separate technical units and systems having a significant impact on the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles should be used as input for the simulation tool.
- (14) In order to reflect the specificities of the individual components, separate technical units and systems and to allow for a more precise determination of their CO<sub>2</sub> emissions and fuel consumption related properties, provisions for the certification of such properties on the basis of testing should be set out.
- (15) For the purpose of limiting the costs of the certification, manufacturers should have the possibility to group into families components, separate technical units and systems with similar design and CO<sub>2</sub> emission and fuel consumption characteristics. One component, separate technical unit or system per family with the least favourable characteristics as regards CO<sub>2</sub> emissions and fuel consumption within that family should be tested and its results should apply to the entire family.
- (16) The costs related to testing may constitute a significant obstacle in particular to companies manufacturing components, separate technical units or systems in small numbers. In order to provide an economically viable alternative to certification, standard values should be set out for certain components, separate technical units and systems with the possibility of using those values instead of the certified values determined on the basis of testing. Standard values should, however, be set out in a way to encourage suppliers of components, separate technical units and systems to apply for certification.
- (17) In order to ensure that the results relating to CO<sub>2</sub> emissions and fuel consumption declared by the suppliers of components, separate technical units and systems as well as vehicle manufacturers are correct, provisions for verifying and ensuring the conformity of the simulation tool operation as well as of the CO<sub>2</sub> emissions and fuel consumption related properties of the relevant components, separate technical units and systems should be set out.

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- (18) In order to ensure sufficient lead time for the national authorities and the industry, the obligation to determine and declare CO<sub>2</sub> emissions and fuel consumption of new vehicles should be implemented gradually for different vehicle groups starting with the vehicles which are the biggest contributors to CO<sub>2</sub> emissions of the heavy-duty sector.
- (19) The provisions set out in this Regulation form part of the framework established by Directive 2007/46/EC and complement the provisions for type approval with regard to emissions and vehicle repair and maintenance information laid down in Regulation (EU) No 582/2011. To establish a clear relationship between those provisions and this Regulation, Directive 2007/46/EC and Regulation (EU) No 582/2011 should be amended accordingly.
- (20) The measures provided for in this Regulation are in accordance with the opinion of the Technical Committee Motor Vehicles,

HAS ADOPTED THIS REGULATION:

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- (1) [OJ L 188, 18.7.2009, p. 1.](#)
- (2) [OJ L 263, 9.10.2007, p. 1.](#)
- (3) Commission Regulation (EU) No 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI) and amending Annexes I and III to Directive 2007/46/EC of the European Parliament and of the Council ([OJ L 167, 25.6.2011, p. 1.](#))

**Changes to legislation:**

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**Changes and effects yet to be applied to the whole legislation item and associated provisions**

- Signature words omitted by [S.I. 2022/1273 reg. 82\(18\)](#)
- Annex 5 Appendix 6 point 1.3 substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(i\)](#)
- Annex 5 Appendix 6 point 1.4.1 image substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(iii\)\(aa\)](#)
- Annex 5 Appendix 6 point 1.5.1 image substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(iv\)\(aa\)](#)
- Annex 5 Appendix 4 point 7.4 word substituted by [S.I. 2022/1273 reg. 83\(4\)\(a\)](#)
- Annex 5 Appendix 6 point 2.1 word substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(v\)](#)
- Annex 5 Appendix 6 point 1.4.1 words omitted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(iii\)\(bb\)](#)
- Annex 5 Appendix 6 point 1.5.1 words omitted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(iv\)\(bb\)](#)
- Annex 5 Appendix 6 point 1.4 words substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(ii\)](#)
- Annex 5 Appendix 6 point 2.1 table words substituted by [S.I. 2022/1273 reg. 83\(4\)\(b\)\(vi\)](#)
- Annex 10 Appendix 4 point 1.1 word substituted by [S.I. 2022/1273 reg. 83\(8\)\(d\)\(i\)](#)
- Annex 10 Appendix 1 words substituted by [S.I. 2022/1273 reg. 83\(8\)\(c\)](#)
- Annex 10 Appendix 4 point 1.1 table words substituted by [S.I. 2022/1273 reg. 83\(8\)\(d\)\(ii\)](#)
- Annex 7 Appendix 5 point 1.3 substituted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(i\)](#)
- Annex 7 Appendix 5 point 1.4.1 image substituted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(iii\)\(aa\)](#)
- Annex 7 Appendix 1s. 1 point 000.5 word substituted by [S.I. 2022/1273 reg. 83\(6\)\(b\)\(ii\)](#)
- Annex 7 Appendix 1 words inserted by [S.I. 2022/1273 reg. 83\(6\)\(b\)\(i\)\(aa\)](#)
- Annex 7 Appendix 1 words omitted by [S.I. 2022/1273 reg. 83\(6\)\(b\)\(i\)\(bb\)](#)
- Annex 7 Appendix 5 point 1.4.1 words omitted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(iii\)\(bb\)](#)
- Annex 7 Appendix 5 point 1.4 words substituted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(ii\)](#)
- Annex 7 Appendix 5 point 2.1 words substituted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(iv\)](#)
- Annex 7 Appendix 5 point 2.1 table words substituted by [S.I. 2022/1273 reg. 83\(6\)\(c\)\(v\)](#)
- Annex 8 Appendix 8 point 1.3 substituted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(i\)](#)
- Annex 8 Appendix 8 point 1.4.1 image substituted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(iii\)\(aa\)](#)
- Annex 8 Appendix 4 table 11 word omitted by [S.I. 2022/1273 reg. 83\(7\)\(c\)\(i\)](#)
- Annex 8 Appendix 4 table 13 word omitted by [S.I. 2022/1273 reg. 83\(7\)\(c\)\(i\)](#)
- Annex 8 Appendix 4 table 15 word omitted by [S.I. 2022/1273 reg. 83\(7\)\(c\)\(ii\)\(aa\)](#)
- Annex 8 Appendix 4 table 15 word omitted by [S.I. 2022/1273 reg. 83\(7\)\(c\)\(ii\)\(bb\)](#)
- Annex 8 Appendix 1s. 1 point 000.6 word substituted by [S.I. 2022/1273 reg. 83\(7\)\(b\)\(ii\)](#)
- Annex 8 Appendix 8 point 2.1 word substituted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(iv\)](#)
- Annex 8 Appendix 1 words inserted by [S.I. 2022/1273 reg. 83\(7\)\(b\)\(i\)\(aa\)](#)
- Annex 8 Appendix 1 words omitted by [S.I. 2022/1273 reg. 83\(7\)\(b\)\(i\)\(bb\)](#)
- Annex 8 Appendix 8 point 1.4.1 words omitted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(iii\)\(bb\)](#)
- Annex 8 Appendix 8 point 1.4 words substituted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(ii\)](#)
- Annex 8 Appendix 8 point 2.1 table words substituted by [S.I. 2022/1273 reg. 83\(7\)\(d\)\(v\)](#)

- Annex 2 Appendix 2s. 2 point 2 omitted by S.I. 2022/1273 reg. 83(2)(b)(ii)
- Annex 2 Appendix 2 words inserted by S.I. 2022/1273 reg. 83(2)(b)(i)
- Annex 6 Appendix 7 point 1.3 substituted by S.I. 2022/1273 reg. 83(5)(e)(i)
- Annex 6 Appendix 7 point 1.5 image substituted by S.I. 2022/1273 reg. 83(5)(e)(iii)(aa)
- Annex 6 Appendix 7 point 2.1 word substituted by S.I. 2022/1273 reg. 83(5)(e)(iv)
- Annex 6 Appendix 1 words omitted by S.I. 2022/1273 reg. 83(5)(c)
- Annex 6 Appendix 7 point 1.5 words omitted by S.I. 2022/1273 reg. 83(5)(e)(iii)(bb)
- Annex 6 Appendix 2 point 8 words substituted by S.I. 2022/1273 reg. 83(5)(d)
- Annex 6 Appendix 3 point 8 words substituted by S.I. 2022/1273 reg. 83(5)(d)
- Annex 6 Appendix 4 point 8 words substituted by S.I. 2022/1273 reg. 83(5)(d)
- Annex 6 Appendix 5 point 8 words substituted by S.I. 2022/1273 reg. 83(5)(d)
- Annex 6 Appendix 7 point 1.4 words substituted by S.I. 2022/1273 reg. 83(5)(e)(ii)
- Annex 6 Appendix 7 point 2.1 table words substituted by S.I. 2022/1273 reg. 83(5)(e)(v)
- Art. 3(5) omitted by S.I. 2022/1273 reg. 82(4)(a)
- Art. 3(16) words substituted by S.I. 2022/1273 reg. 82(4)(b)
- Art. 3(20) words substituted by S.I. 2022/1273 reg. 82(4)(c)
- Art. 10(1a) inserted by S.I. 2022/1273 reg. 82(8)(b)
- Annex 10a para. 3(f) words inserted by S.I. 2022/1273 reg. 83(9)(a)
- Annex 10a para. 3(f) table words substituted by S.I. 2022/1273 reg. 83(9)(b)(c)
- Art. 12(8) inserted by S.I. 2022/1273 reg. 82(10)