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Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on requirements relating to emission limits and type-approval for internal combustion engines for non-road mobile machinery

(Text with EEA relevance)

{SWD(2014) 281 final}

{SWD(2014) 282 final}

EXPLANATORY MEMORANDUM

1. CONTEXT OF THE PROPOSAL

- **General context**

Non-road mobile machinery (NRMM) covers a large variety of combustion engines installed in machines ranging from small handheld equipment, construction machinery and generating sets, to railcars, locomotives and inland waterway vessels. These engines contribute significantly to air pollution and are accountable for roughly 15% of the nitrogen oxide (NO_x) and 5% of the particulate matter (PM) emissions in the EU.

The emissions limits for these engines are currently set out in Directive 97/68/EC. This Directive was amended a number of times, but several technical reviews have concluded that the legislation in its current form has shortcomings. The scope is overly restricted as it leaves out some engine categories. New emission stages were last introduced when the Directive was amended in 2004 and no longer reflect the current state of technology. Furthermore, there is a mismatch between the emission limits for certain engine categories.

Finally, there is recent conclusive evidence on the adverse health effects of diesel exhaust emissions and especially about particulate matter (i.e. diesel soot). One of the main findings is that the size of the particles is a crucial factor behind the observed health effects. This issue can only be addressed by limit values that are based on a particle number count (i.e. PN limit). Therefore, and in line with the developments in the road sector, the introduction of a new emission stage (Stage V), which would target particle number limits in addition to particle mass limits, appeared appropriate for the most relevant engine categories.

- **Grounds for and objectives of the proposal**

The proposal seeks to protect human health and the environment, and ensure the proper functioning of the internal market for engines in NRMM. It also seeks to address competitiveness and compliance aspects.

In line with the EU's air quality policy, the objective is to progressively reduce the emissions from new engines being brought on the market and, thereby, replace the old, more polluting ones over time. This is expected to result in a very significant emission reduction overall, but the reduction by engine category will vary depending on how stringent the specific requirements already are at present.

The proposal is also expected to alleviate the pressure on Member States to take additional regulatory action that could hamper the internal market. Finally, the proposal seeks to remove obstacles to external trade through harmonised rules and by reducing the regulatory barriers that result from diverging emission requirements. In particular with a view to bringing EU and US requirements closer together.

Finally, the proposal contributes to the competitiveness of the European industry by simplifying the existing type-approval legislation, improving transparency and alleviating administrative burden.

- **Existing provisions in the area of the proposal**

The existing emission requirements for NRMM engines are regulated in Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the

emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (OJ L 59, 27.2.1998, p. 1).

The draft proposal and its implementing and delegated acts will carry over and improve on the existing requirements laid down in the above act, following a technical review concluding on a number of substantial shortcomings. Compared to the existing act, the proposal for a regulation will:

- introduce new emission limits reflecting technological progress and EU policies in the on-road sector, with a view to achieving EU air quality targets;
- extend the scope, with a view to improving market harmonisation (EU and international) and minimising the risk of market distortions;
- introduce measures for simplifying administrative procedures and improving enforcement, including conditions for better market surveillance.

• **Consistency with the other policies and objectives of the Union**

The initiative under consideration is aimed at improving the protection of the environment by updating existing emission limits and by extending their scope, where appropriate. At the same time, it is aimed at ensuring the proper functioning of the single market, while removing unnecessary burden on the companies operating in it and internationally. It is, therefore, entirely consistent with the Europe 2020 strategy and fully aligned to the EU's Sustainable Development Strategy.

In this context, the initiative under consideration ties in with the following more specific policies and objectives:

- The EU's 6th Environmental Action Programme¹ which proposed to attain “levels of air quality that do not give rise to significant negative impacts on, and risks to human health and the environment”.
- The Thematic Strategy on Air Pollution² which provides a comprehensive EU policy framework for reducing the adverse impact of air pollution on human health and environment for the period up to 2020.
- The National Ceilings Directive 2001/81/EC which establishes legally binding limits for the total permissible emissions at Member State level for several air pollutants. According to the official data reported under said Directive, 12 Member States exceeded these limits in 2010 and, despite some improvements, compliance problems will likely persist.
- The Ambient Air Quality Directive 2008/50/EC which sets legally binding limits for concentrations in outdoor air of major air pollutants such as particulate matter and nitrogen dioxide.
- The 2011 White Paper on Transport³, in particular with regard to cleaner inland waterway and rail transportation.

More stringent requirements for combustion engines in NRMM would positively contribute to the objectives of all of the above policies.

Finally, the proposal also ties in with the industrial policy update of 2012⁴ and could make an important contribution to technical harmonisation in the context of the EU-US trade negotiations (TTIP).

¹ Decision No 1600/2002/EC of 22 July 2002

² COM(2005)446 of 21 September 2005.

³ COM(2011)144 of 28 March 2011

⁴ COM(2012)582 of 10 October 2012

2. CONSULTATION OF INTERESTED PARTIES AND IMPACT ASSESSMENT

• Consultation of interested parties

Consultation methods, main sectors targeted and general profile of respondents

In developing the proposal the Commission has consulted stakeholders in a number of ways:

- There was an open public internet consultation, covering all aspects of the proposal. Responses were received from EU national and regional authorities of EU Member States (ministries, agencies), professional associations, industrial companies, non-governmental organisations and social partners.
- A stakeholder hearing accompanying the open public internet consultation was organised on 14 February 2013 in Brussels, attended by approximately 80 participants.
- In the context of several Impact Assessment studies conducted in the past by external consultants, stakeholders were invited to contribute and send in comments.
- The proposal has been discussed in several meetings of the Commission's Working Group of Experts on Machinery Emissions (GEME), which brings together industry, NGOs, as well as Member State and Commission representatives.

Summary of responses and how they have been taken into account

An open public consultation started on 15 January 2013 and closed on 8 April 2013 (12 weeks duration). For this purpose, a dedicated consultation web-page⁵ was set up and the Commission services prepared a 15 page consultation document, outlining key issues, study results and potential courses of action. 69 responses were received in total.

A detailed analysis of the results is included in Annex II to the Impact Assessment report and the individual responses can be viewed on the consultation web-page.

• Collection and use of expertise

Scientific/expertise domains concerned

The proposal required the assessment of different policy options as well as the associated economic, societal and environmental impacts.

Methodology used

The Commission has carried out various studies and regularly consulted stakeholders, as concerns the feasibility of new limit values and the need to include new stages for exhaust emissions based on technical progress. The Impact Assessment builds on the following external studies⁶:

- A Technical Review of the Directive, submitted in two parts, by the JRC, which in part 1 includes an overview of emissions inventories for NRMM. Part 2, inter alia, focuses on spark ignition engines (small petrol engines and snowmobile engines) and, among others, analyses emission inventories and market sales of construction and agricultural machinery.

⁵ http://ec.europa.eu/enterprise/sectors/automotive/documents/consultations/2012-emissions-nrmm/index_en.htm

⁶ http://ec.europa.eu/enterprise/sectors/mechanical/non-road-mobile-machinery/publications-studies/index_en.htm

- An Impact Assessment study by ARCADIS N.V. assesses the impacts of the policy options developed in the Technical Review of the JRC. A complementary study by the same contractors looked specifically at the impacts on small and medium sized enterprises (SMEs). In addition to the social and economic impact the environmental and health impact was also evaluated in this study.
- A study from Risk & Policy Analysis (RPA) and Arcadis, evaluates the current contribution of the NRMM sector to greenhouse gas (GHG) emissions. This study also examines the feasibility of extending the emission limits for variable speed engines to constant speed engines and considers the option of aligning the exhaust emission limit values to US values.
- The PANTEIA study⁷ commissioned by DG MOVE analyses the situation in the inland navigation sectors and assesses specific measures for reducing emissions from inland waterway transport.

The work on the impact assessment was followed and informed by an inter-service steering group which met four times in 2013. All relevant Commission services were invited to participate in this group. The JRC further supported the analytical work with a research project on the effects of particulate number (PN) limits for certain engine categories.

Means used to make the expert advice publicly available

The reports of the aforementioned studies, respectively, are available on the DG Enterprise and Industry website.

- **Impact assessment**

Three main policy options were analysed in detail. Each consists of various sub-options for the engine categories and applications already covered by EU NRMM legislation, and for the ones that could come under its scope in the future. Alongside the no-policy change scenario, these options are:

Option 2: Alignment with US standards in scope and limit values.

Option 3: Step towards road sector ambition levels, for the most relevant emission sources.

Option 4: Extended level of ambition through enhanced monitoring provisions.

However, it was already taken into account in the analytical design that the preferred choice might be a combination of elements from different options. The analysis of costs and benefits was carried out in individual modules that allow for regrouping elements.

Non-legislative options (e.g. a voluntary agreement with industry) have been considered, but the initial analysis concluded that such an approach would be unsuitable for reaching the initiative's objectives. This decision is based on the consideration that emission limits for NRMM engines are unlikely to be effective and cannot guarantee a level playing field for all economic operators unless they are legally binding.

The impact assessment was accepted by the Impact Assessment Board following its presentation on 20 November 2013.

3. LEGAL ELEMENTS OF THE PROPOSAL

- **Summary of the proposed action**

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http://ec.europa.eu/transport/modes/inland/studies/inland_waterways_en.htm

The proposal significantly upgrades the NRMM engine type-approval system with respect to the technical requirements on emissions by adopting stricter levels, as well as introducing the “split-level approach”.

The proposal will, through the delegated acts foreseen herein, lay down in detail the new mandatory requirements for Stage V engine emission limits. In particular, the delegated acts adopted under this proposal will include, amongst others:

- detailed technical requirements of the test cycles;
- technical test and measurement procedures;
- detailed arrangements and requirements for the exceptions granted under this Regulation;
- detailed provisions for type-approval procedures.

• **Legal basis**

The legal basis of the proposal is Article 114 of the Treaty on the Functioning of the European Union.

• **Subsidiarity principle**

The subsidiarity principle applies since the proposal does not fall under the exclusive competence of the Union.

As the proposal involves amendments to existing EU legislation, only the EU can effectively address the issues. Furthermore, the policy objectives cannot be sufficiently achieved by actions of the Member States.

European Union action is necessary to avoid the emergence of barriers to the single market notably in the field of NRMM engines, and because of the transnational nature of air pollution. Even though the effects of the main air pollutants are most severe close to the source, the effects on air quality are not limited to the local level and cross-border pollution is a serious environmental problem that can render national solutions ineffective. In order to solve the problem of air pollution, concerted action at EU level is required.

Setting up emission limits and type-approval procedures at national level would potentially result in a patchwork of 28 different regimes, which would represent a serious obstacle to intra-Union trade. Moreover, it could impose a significant administrative and financial burden on manufacturers who are active in more than one market. Therefore, the objectives of the initiative under consideration cannot be achieved without action at the EU level.

Finally, a harmonised approach at EU level is expected to represent the most cost-efficient way for manufacturers and end-users to achieve emission reductions.

The proposal therefore complies with the subsidiarity principle.

• **Proportionality principle**

The proposal complies with the proportionality principle for the following reasons.

As shown in the impact assessment, the proposal complies with the proportionality principle because it does not go beyond what is necessary in order to achieve the objectives of ensuring the proper functioning of the internal market while at the same time providing for a high level of public safety and environmental protection.

The simplification of the regulatory environment will significantly contribute to the reduction of administrative costs for national authorities and industry.

• **Choice of instruments**

Proposed instruments: regulation.

Other means would not be adequate for the following reasons.

Directive 97/68/EC has been substantially amended several times. For reasons of clarity, predictability, rationality and simplification, the Commission is proposing to replace Directive 97/68/EC by a Regulation and a small number of delegated and implementing acts.

Furthermore, the use of a Regulation will ensure that the provisions concerned are directly applicable to manufacturers, approval authorities and technical services, and that they can be updated much faster and more efficiently to take better account of technical progress

The proposal uses the “split-level approach” is already used in other pieces of legislation in the area of EU type-approval of motor vehicles. This approach foresees legislation in two steps:

- first, the fundamental provisions will be laid down by the European Parliament and the Council in a Regulation based on Article 114 of the Treaty on the Functioning of the European Union through the ordinary legislative procedure;
- secondly, the technical specifications implementing the fundamental provisions will be laid down in delegated acts adopted by the Commission in accordance with Article 290 of the Treaty on the Functioning of the European Union.

4. BUDGETARY IMPLICATION

The cost associated to setting up an electronic database for the exchange of type-approval information was already assessed in a feasibility study⁸ commissioned by the UNECE in June 2006 and for cars, a European Type-Approval Exchange System (ETAES) already exists in the EU.

While the feasibility study was not done on a publicly available database, it can still be assumed that the cost assessment provides a valid indication of the costs involved.

The study predicted one off start-up costs in the € 50,000 to € 150,000 range and operating costs of € 5,000 to € 15,000 per month, depending on the length of the contract with the service provider. A similar monthly range is provided for operating a help desk service, if required.

5. ADDITIONAL INFORMATION

• Simulation, pilot phase and transitional period

There are general and specific transitional periods in the proposal in order to allow sufficient lead time for engine and machinery manufacturers, as well as for administrations.

For the transition from the current emission standards to the new emission stage, a newly developed transition scheme is proposed which is significantly simpler in administrative terms for manufacturers of engines and machinery, whilst at the same time substantially reducing the burden for the national approval authorities.

With regard to the monitoring of in-service emission performance of engines, pilot programmes are proposed with a view to developing appropriate testing procedures.

• Simplification

The proposal provides for simplification of legislation.

An extremely complex Directive on NRMM engine emissions with 15 Annexes, which was amended 8 times without recasting, will be repealed.

⁸ T-Systems 2006, Database for the Exchange of Type Approval Documentation (DETA) Feasibility Study.

The proposal provides for simplification of administrative procedures for public authorities. The proposal is included in the Commission's rolling programme for up-date and simplification of the 'acquis communautaire' and its Legislative Work Programme under the reference 2010/ENTR/001.

- **Repeal of existing legislation**

The adoption of the proposal will lead to the repeal of existing legislation.

- **European Economic Area**

The proposed act concerns an EEA matter and should therefore extend to the European Economic Area.

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THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 114 thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national Parliaments,

Having regard to the opinion of the European Economic and Social Committee⁹,

Acting in accordance with the ordinary legislative procedure¹⁰,

Whereas:

- (1) The internal market comprises an area without internal frontiers in which the free movement of goods, persons, services and capital must be ensured. To this end measures for the reduction of air pollution by engines to be installed in non-road mobile machinery were established by Directive 97/68/EC of the European Parliament and of the Council¹¹. It is appropriate to pursue efforts in the development and operation of the internal market of the Union.

⁹ OJ L ...

¹⁰ OJ L ...

¹¹ Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (OJ L 59, 27.2.1998, p. 1).

- (2) The internal market should be based on transparent, simple and consistent rules which provide legal certainty and clarity from which businesses and consumers alike can benefit.
- (3) With the aim of simplifying and accelerating its adoption, a new regulatory approach has been introduced in respect of Union engine type-approval legislation. Accordingly, the legislator sets out the fundamental rules and principles and empowers the Commission to adopt delegated acts concerning further technical details. With regard to substantive requirements, this Regulation should therefore lay down only fundamental provisions on the emission of gaseous and particulate pollutants and empower the Commission to lay down the technical specifications in delegated acts.
- (4) Regulation (EU) No 167/2013 of the European Parliament and of the Council¹² has already established a regulatory framework for the approval and market surveillance of agricultural and forestry vehicles. Owing to the similarity of the fields and given the positive experience derived from the application of Regulation (EU) No 167/2013, many of the rights and obligations established by that Regulation should be taken into consideration in respect of non-road machinery. However, it is essential that a distinct set of rules be adopted to fully take into account the specific requirements of engines to be installed in non-road mobile machinery.
- (5) This Regulation should contain substantive requirements relating to emission limits and EU type-approval procedures for engines to be installed in non-road mobile machinery. The main elements of the relevant requirements of this Regulation are based on the results of the impact assessment of 20 November 2013 carried out by the Commission analysing different options by listing possible advantages and disadvantages in terms of economic, environmental, safety and societal aspects. Both qualitative and quantitative aspects were included in that analysis. After comparison of the different options, the preferred options were identified and chosen to form the basis for this Regulation.
- (6) This Regulation aims to lay down harmonised rules for the EU type-approval of engines to be installed in non-road mobile machinery, with a view to ensuring the functioning of the internal market. For these purposes, new emission limits should be established to reflect technological progress and ensure convergence with Union policies in the on-road sector, with a view to achieving Union air quality targets and reducing the emissions from non-road mobile machinery, thus resulting in a more proportionate share of machinery emissions in relation to road vehicle emissions. The scope of Union legislation in this field should be broadened, with a view to improving market harmonisation at EU and international level and minimising the risk of market distortions. In addition, this Regulation aims to simplify the current legal framework, including measures for simplifying administrative procedures, and to improve the general conditions for enforcement, in particular by strengthening the rules on market surveillance.
- (7) The requirements set out in respect of engines for non-road machinery and secondary engines for passenger and goods vehicles should follow the principles laid down in the Commission Communication of 5 June 2002 entitled ‘Action plan “Simplifying and improving the regulatory environment”’.

¹² Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles (OJ L 60, 2.3.2013, p. 1).

- (8) The Seventh General Union Environment Action Programme adopted by Decision No 1386/2013/EU of the European Parliament and of the Council¹³ recalls that the Union has agreed to achieve levels of air quality that do not give rise to significant negative impacts on, and risks to, human health and the environment. Union legislation has established appropriate emission limits for ambient air quality for the protection of human health and sensitive individuals in particular, as well as for national emission ceilings¹⁴. Following its Communication of 4 May 2001, which established the ‘Clean Air For Europe (CAFE) programme’, the Commission adopted another Communication on 21 September 2005 entitled ‘Thematic strategy for air pollution’. One of the conclusions of that thematic strategy is that further reductions in emissions from the transport sector (air, maritime and land transport), from households and from the energy, agricultural and industrial sectors are needed to achieve EU air quality objectives. In this context, the task of reducing emissions from engines installed in non-road mobile machinery (NRMM) should be approached as part of an overall strategy. The Stage V emission limits are one of the measures designed to reduce the actual in-use emissions of air pollutants such as particulate pollutants as well as ozone precursors such as nitrogen oxides (NOx) and hydrocarbons.
- (9) On 12 June 2012, the World Health Organisation (WHO), through its International Agency for Research on Cancer (IARC), reclassified diesel engine exhaust as ‘carcinogenic to humans’ (Group 1), based on sufficient evidence that exposure is associated with an increased risk for lung cancer.
- (10) Achieving the Union's air quality objectives requires a continuous effort to reduce engine emissions. For that reason, manufacturers should be provided with clear information on future emission limit values and should be afforded an appropriate period of time in which to attain them and pursue the requisite technical developments.
- (11) In setting emission limits it is important to take into account the implications for competitiveness of markets and manufacturers, the direct and indirect costs imposed on business and the benefits that accrue in terms of stimulating innovation, improving air quality, reducing health costs and increasing life expectancy.
- (12) Emissions from non-road mobile machinery engines constitute a significant proportion of the total man-made emissions of certain noxious atmospheric pollutants. Engines responsible for a considerable share of air pollution by nitrogen oxides (NOx) and particulate matter (PM) should fall within the scope of the new emission limit rules.
- (13) The Commission should keep under review emissions which are, as yet, unregulated and which arise as a consequence of the wider use of new fuel formulations, engine technologies and emission control systems. The Commission should also, where necessary, submit a proposal to the European Parliament and to the Council with a view to regulating such emissions.
- (14) It is appropriate to encourage the introduction of alternative fuel vehicles, which can have low NOx and particulate emissions. Thus, limit values for total hydrocarbons should be adapted in order to take into account non-methane hydrocarbons and methane emissions.

¹³ Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 ‘Living well, within the limits of our planet’ (OJ L 354, 28.12.2013, p. 171).

¹⁴ Decision No 1600/2002/EC; Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe (OJ L 152, 11.6.2008, p. 1).

- (15) In order to ensure that emissions of ultrafine particulate pollutants (size of 0,1 µm and below) are controlled, the Commission should be empowered to adopt a number-based approach to emissions of particulate pollutants, in addition to the mass-based approach which is currently used. The number-based approach to emissions of particles should draw on the results of the Particulate measurement programme (PMP) of the United Nations Economic Commission for Europe (UNECE) and be consistent with the existing ambitious objectives for the environment.
- (16) In order to achieve these environmental objectives, it is appropriate to indicate that the particle number limits are likely to reflect the highest levels of performance currently obtained with particle filters by using the best available technology.
- (17) The Commission should adopt worldwide harmonised testing cycles in the test procedures that provide the basis for EU type-approval emissions regulations. The application of portable emissions measurement systems for monitoring the actual in-use emissions should also be considered.
- (18) In order to better control actual in-use emissions and to prepare the in-service conformity process, a testing methodology for monitoring the emission performance requirements based on the use of portable emission measurement systems should be adopted within an appropriate timeframe.
- (19) The correct functioning of the after-treatment system, and more specifically in the case of NO_x, is the basic requirement for fulfilling the established limits for pollutant emissions. In this context, measures to guarantee the proper operation of systems relying on the use of a reagent should be introduced.
- (20) Engines which are in compliance with and covered by the scope of the new rules on emission limits and EU type-approval procedures should be permitted to be placed on the market in the Member States; those engines should not be subject to any other national emission requirement. Member State granting approvals should take the necessary verification measures in order to ensure the identification of engines produced under each EU type-approval.
- (21) A limited number of exemptions should be granted to address the specific needs related to armed forces, logistic supply constraints, field testing of prototypes and the use of machinery in explosive atmospheres.
- (22) The national authorities' obligations laid down in the market surveillance provisions of this Regulation are more specific than the corresponding provisions of Regulation (EC) No 765/2008 of the European Parliament and of the Council¹⁵.
- (23) In order to ensure that the procedure for monitoring conformity of production, which is one of the cornerstones of the EU type-approval system, has been correctly implemented and functions properly, manufacturers should be regularly checked by the appointed competent authority or by an appropriately qualified technical service designated for that purpose.
- (24) The Union is a contracting party of the Agreement of the United Nations Economic Commission for Europe concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted to and/or used on wheeled

¹⁵ Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (OJ L 218, 13.8.2008, p. 30).

vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions ('Revised 1958 Agreement').

- (25) As a consequence, UNECE regulations and the amendments thereto which the Union has voted in favour of or to which the Union has acceded, in application of Decision 97/836/EC, should be recognized as equivalent to EU type-approvals granted under this Regulation. Accordingly, the Commission should be empowered to adopt delegated acts in order to determine which UNECE regulations will apply to EU type-approvals.
- (26) In order to ensure uniform conditions for the implementation of this Regulation, implementing powers should be conferred on the Commission. Those powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council¹⁶.
- (27) In order to supplement this Regulation with further technical details, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission in respect of engine families, tampering, monitoring of in-service emission performance, technical tests and measurement procedures, conformity of production, separate delivery of an engine's exhaust after-treatment system, engines for field-testing, engines for use in hazardous atmospheres, equivalence of engine type-approvals, information for OEMs and end-users, self-testing, standards and assessment of technical services, fully and partially gaseous fuelled engines, measurement of the particulate number and test cycles. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.
- (28) Member States should lay down rules on penalties applicable to infringements of this Regulation and ensure that they are implemented. Those penalties should be effective, proportionate and dissuasive.
- (29) With a view to taking into account on-going technical progress and the latest findings in the fields of research and innovation, it is appropriate to identify further pollutant emission reduction potential of engines installed in non-road mobile machinery. The focus of these assessments should be on those engine categories that are included for the first time in the scope of this Regulation and on those for which emission limit values remain unaltered under this Regulation.
- (30) In the interest of clarity, predictability, rationality and simplification and in order to reduce the burden for engine and machinery manufacturers, this Regulation should contain only a limited number of implementation stages for the introduction of new emission levels and type-approval procedures. Timely definition of requirements is essential to ensuring sufficient lead-time for manufacturers to develop, test and implement technical solutions for engines produced in series, and for manufacturers and approval authorities in the Member States to put in place the necessary administrative systems.

¹⁶ Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13).

- (31) Directive 97/68/EC has been substantially amended several times. In the interests of clarity, predictability, rationality and simplification, Directive 97/68/EC should be replaced by a Regulation and a small number of delegated and implementing acts. The use of a Regulation should ensure that the provisions concerned are directly applicable to manufacturers, approval authorities and technical services, and that they can be updated much faster and more efficiently to take better account of technical progress.
- (32) As a consequence of the application of the new regulatory system set in place by this Regulation, Directive 97/68/EC should be repealed with effect from 1 January 2017. This date should allow industry sufficient time to adapt to the new provisions laid down in this Regulation and to the technical specifications and administrative provisions to be set out in the delegated and implementing acts adopted pursuant to this Regulation.
- (33) Since the objectives of this Regulation, namely to lay down harmonised rules on the administrative and technical requirements relating to emission limits and EU type-approval procedures for engines to be installed in non-road mobile machinery, cannot be sufficiently achieved by the Member States, and can therefore, by reason of their scale and effects, be better achieved at Union level, the Union may adopt measures in accordance with the principle of subsidiarity, as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve those objectives,

HAVE ADOPTED THIS REGULATION:

CHAPTER I

SUBJECT MATTER, SCOPE AND DEFINITIONS

Article 1

Subject matter

This Regulation establishes emission limits for gaseous pollutants and particulate matter and the administrative and technical requirements relating to EU type-approval for all engine types and engine families referred to in Article 2(1).

This Regulation also establishes the requirements for the market surveillance of engines to be installed or intended to be installed in non-road mobile machinery, which are subject to EU type-approval.

Article 2

Scope

1. This Regulation shall apply to all engines set out in Article 4, which are installed in, or intended to be installed in, non-road mobile machinery, with the exception of engines for export to third countries.

2. This Regulation shall not apply to engines for:
- (a) the propulsion of vehicles as defined by point (13) of Article 3 of Directive 2007/46/EC of the European Parliament and of the Council¹⁷;
 - (b) the propulsion of agricultural and forestry vehicles as defined by point (11) of Article 3 of Regulation (EU) No 167/2013 of the European Parliament and of the Council¹⁸;
 - (c) stationary machinery;
 - (d) sea-going vessels, requiring a valid maritime navigation or safety certificate;
 - (e) the propulsion of inland waterway vessels of net power less than 37 kW;
 - (f) recreational craft as defined by Directive 2013/53/EU of the European Parliament and of the Council¹⁹;
 - (g) aircraft;
 - (h) any recreational vehicles, except snowmobiles, all-terrain vehicles (ATV) and side-by-side vehicles (SbS);
 - (i) vehicles and machinery exclusively intended for use in competition;
 - (j) reduced-scale models or reduced-scale replicas of vehicles or machines when these models or replicas have a net power less than 19 kW.

Article 3

Definitions

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

- (1) “non-road mobile machinery” means any mobile machine, transportable equipment or vehicle with or without body work or wheels, not intended for the use of passenger or goods transport on roads; it includes machinery installed on the chassis of vehicles intended for passenger or goods transport on roads;
- (2) “EU type-approval” means the procedure whereby an approval authority certifies that an engine type or engine family satisfies the relevant administrative provisions and technical requirements of this Regulation;
- (3) “gaseous pollutants” means carbon monoxide (CO), total hydrocarbons (HC) and oxides of nitrogen (NO_x), the last named being nitric oxide (NO) and nitrogen dioxide (NO₂), expressed as nitrogen dioxide (NO₂) equivalent;
- (4) “Particulate Matter (PM)” means any material collected on a specified filter medium after diluting engine exhaust gas with clean filtered air so that the temperature does not exceed 325 K (52 °C);

¹⁷ 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 the systems, components and separate technical units intended for such vehicles (OJ L 263, 9.10.2007, p.1).

¹⁸ Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles (OJ L 60, 2.03.2013, p. 1).

¹⁹ Directive 2013/53/EU of the European Parliament and of the Council of 20 November 2013 on recreational craft and personal watercraft and repealing Directive 94/25/EC (OJ L 354, 28.12.2013, p. 90).

- (5) “Particle Number (PN)” means the number of solid particles with a diameter greater than 23nm;
- (6) “engine” means an energy converter other than a gas turbine in which combustion of the fuel takes place in a confined space, producing expanding gases that are used directly to provide mechanical power, for which EU type-approval may be granted; it includes the emission control system and the communication interface (hardware and messages) between the engine system electronic control unit(s) (ECU) and any other powertrain or vehicle control unit necessary to comply with Chapters II and III;
- (7) “engine type” means a specification of engines which do not differ in essential engine characteristics;
- (8) “engine family” means a manufacturer's grouping of engine types which, through their design, have similar exhaust emission characteristics and respect the applicable emission limit values;
- (9) “parent engine” means an engine type selected from an engine family in such a way that its emissions characteristics are representative for that engine family;
- (10) “Compression Ignition (CI) engine” means an engine that works on the compression-ignition principle;
- (11) “Spark Ignition (SI) engine” means an engine that works on the spark-ignition principle;
- (12) “dual-fuel engine” means an engine that is designed to simultaneously operate with a liquid fuel and a gaseous fuel, both fuels being metered separately, the consumed amount of one of the fuels relative to the other one being able to vary depending on the operation;
- (13) “single-fuel engine” means an engine that is not a dual-fuel engine as defined in point (12);
- (14) “liquid fuel” means a fuel which exists in the liquid state under standard ambient conditions²⁰;
- (15) “gaseous fuel” means any fuel which is wholly gaseous at standard ambient conditions²⁰;
- (16) “Gas Energy Ratio (GER)” means, in the case of a dual-fuel engine, the ratio of the energy content of the gaseous fuel over the energy content of both fuels; in the case of single-fuel engines, GER is defined as being either 1 or 0 according to the type of fuel;
- (17) “variable-speed engine” means an engine that is not a constant-speed engine as defined in point 18;
- (18) “constant-speed engine” means an engine whose type-approval is limited to constant speed operation, excluding engines whose constant-speed governor function is removed or disabled; a constant speed engine may be provided with an idle speed that can be used during start-up or shut-down; a constant speed engine may be equipped with a governor that can be set to alternative speeds when the engine is stopped;
- (19) “constant-speed operation” means engine operation with a governor that automatically controls the operator demand to maintain engine speed, even under changing load;
- (20) “hand-held SI engine” means an SI engine that meets at least one of the following requirements:

²⁰ 298K, total ambient pressure 101,3 kPa.

- (a) it is used in a piece of equipment that is carried by the operator throughout the performance of its intended function(s),
 - (b) it is used in a piece of equipment that operates multi-positionally, such as upside down or sideways, to complete its intended function(s),
 - (c) the engine must be used in a piece of equipment for which the combined engine and equipment dry weight is less than 20 kilograms and meets at least one of the following conditions:
 - (i) its operator provides support or, alternatively, carries the equipment throughout the performance of its intended function(s),
 - (ii) its operator provides support or attitudinal control for the equipment throughout the performance of its intended function(s),
 - (iii) it is used in a generator or a pump;
- (21) “propulsion engine” means an engine intended to directly or indirectly provide propulsion for a type of non-road mobile machine as defined in point (1);
- (22) “auxiliary engine” means an engine installed or intended for installation in or on a non-road mobile machine that is not a propulsion engine;
- (23) “net power” means the engine power obtained on a test bench at the end of a crankshaft, or its equivalent, measured in accordance with the method of measuring the power of internal combustion engines specified in UNECE Regulation No. 120 using a reference fuel set out in Article 24(2);
- (24) “reference power” means the net power that shall be used to determine the applicable emission limit values for the engine;
- (25) “rated net power” means net power as declared by the manufacturer of an engine at rated speed;
- (26) “maximum net power” means the highest value of the net power on the nominal full-load power curve for the engine type;
- (27) “rated speed” means the engine speed at which, according to the statement of the manufacturer, the rated power is delivered;
- (28) “engine production date” means the date (expressed as the month and year) when the engine passes the final check after it has left the production line and is ready to be delivered or to be put on stock;
- (29) “transition period” means the first eighteen months following the date of mandatory implementation of Stage V, as referred to in Article 17(2);
- (30) “transition engine” means an engine which has an engine production date that is prior to the dates for placing on the market of engines referred to in Article 17(2) and meets any of the following requirements:
- (a) is in conformity with the latest applicable emission limits defined in the relevant legislation applicable on the date of entry into force of this Regulation, or
 - (b) was not regulated at Union level on the date of entry into force of this Regulation;

- (31) “machine production date” means the year indicated on the statutory marking of the machine or, in absence of a mandatory marking, the year when the machine passes the final check after it has left the production line;
- (32) “inland waterway vessel” means a vessel falling within the scope of Directive 2006/87/EC;
- (33) “generating set” means an independent non-road mobile machine that is not part of a power train, primarily intended to produce electric power;
- (34) “stationary machinery” means machinery that is intended to be permanently installed in one location in its first use and not intended to be moved, on road or otherwise, except during shipment from the place of manufacture to the place of first installation;
- (35) “permanently installed” means bolted, or otherwise effectively fixed so that it cannot be removed without the use of tools or equipment, to a foundation or an alternative constraint intended to cause the engine to operate in one single location at a building, structure, facility or installation;
- (36) “reduced-scale model replica” means a model or replica machine or vehicle that is manufactured to a smaller scale than the original for recreational purposes;
- (37) “snowmobile” means a self-propelled machine that is intended for off-road travel primarily on snow, is driven by tracks in contact with snow and steered by a ski or skis in contact with the snow, and has a maximum unladen mass, in running order, of 454 kg (including standard equipment, coolant, lubricants, fuel, tools and 75 kg driver but excluding optional accessories);
- (38) “All-Terrain Vehicle (ATV)” means a motorised vehicle, propelled by an engine, intended primarily to travel on unpaved surfaces on four or more wheels with low-pressure tyres, having a seat designed to be straddled by the driver only or a seat designed to be straddled by the driver and a seat for no more than one passenger, and handlebars for steering;
- (39) “Side-by Side vehicle (SbS)”, means a self-propelled, operator-controlled, non-articulated vehicle intended primarily to travel on unpaved surfaces on four or more wheels, having a minimum unladen mass, in running order, of 300 kg (including standard equipment, coolant, lubricants, fuel, tools and 75 kg driver but excluding optional accessories) and a maximum design speed of 25 km/h or more; in addition, it is designed to transport persons and/or cargo and pull and push equipment and steered by a control other than a handlebar, designed for recreational or utility purposes and shall carry no more than 6 people including the driver, sitting side by side on one or more non-straddle seats;
- (40) “railcar” means a railway vehicle that is designed to provide, either directly through its own wheels or indirectly through the wheels of other railway vehicles, the motive power for propelling itself, and that is specifically designed to carry goods or passengers, or both goods and passengers, and is not a locomotive;
- (41) “locomotive” means a railway vehicle designed to provide, either directly through its own wheels or indirectly through the wheels of other railway vehicles, the motive power for propelling itself and for propelling other railway vehicles that are designed to carry freight, passengers and other equipment, itself being designed or intended not to carry freight or passengers (other than those operating the locomotive);
- (42) “auxiliary railway vehicle” means a railway vehicle that is not a railcar as defined in point (40) or locomotive as defined in point (41), including but not limited to, a railway

vehicle specifically designed to perform maintenance or construction work or lifting operations associated with the track or other infrastructure of the railway;

- (43) “railway vehicle” means a type of non-road mobile machine that operates exclusively on railway tracks;
- (44) “making available on the market” means any supply of an engine as defined in point (6) for distribution or use on the Union market in the course of a commercial activity, whether in return for payment or free of charge;
- (45) “placing on the market” means the first making available of an engine on the Union market, as defined in point (6);
- (46) “manufacturer” means any natural or legal person who is responsible to the approval authority for all aspects of the engine EU type-approval or authorisation process, for ensuring conformity of the engine production and who is also responsible for market surveillance concerns for the engines produced, whether or not directly involved in all stages of the design and construction of the engine which is the subject of the approval process;
- (47) “manufacturer’s representative” means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer in matters related to the approval authority or the market surveillance authority and to act on the manufacturer’s behalf in matters covered by this Regulation;
- (48) “importer” means any natural or legal person established in the Union who places on the market an engine as defined in point (6) from a third country, whether or not the engine is already installed in machinery;
- (49) “distributor” means any natural or legal person in the supply chain, other than the manufacturer or the importer, who makes available on the market an engine as defined in point (6);
- (50) “economic operator” means the manufacturer as defined in point (46), the manufacturer’s representative as defined in point (47), the importer as defined in point (48) or the distributor as defined in point (49);
- (51) “Original Equipment Manufacturer (OEM)” means a manufacturer of non-road mobile machinery;
- (52) “approval authority” means the authority of a Member State established or appointed by the Member State and notified to the Commission by the Member State with competence for all aspects of the approval of an engine type or of an engine family, for the authorisation process, for issuing and, if appropriate, withdrawing or refusing approval certificates, for acting as the contact point for the approval authorities of other Member States, for designating the technical services and for ensuring that the manufacturer meets his obligations regarding the conformity of production;
- (53) “technical service” means an organisation or body designated by the approval authority of a Member State as a testing laboratory to carry out tests, or as a conformity assessment body to carry out the initial assessment and other tests or inspections, on behalf of the approval authority, it being possible for the approval authority itself to carry out those functions;
- (54) “market surveillance” means the activities carried out and measures taken by national authorities to ensure that engines made available on the market comply with the requirements set out in the relevant Union harmonisation legislation and do not endanger

health, or the environment, or put at risk any other aspect of the protection of the public interest;

- (55) “market surveillance authority” means an authority of a Member State responsible for carrying out market surveillance on its territory;
- (56) “national authority” means an approval authority or any other authority involved in and responsible for market surveillance, border control or placing on the market in a Member State, in respect of engines to be installed in non-road mobile machinery;
- (57) “end-user” means any natural or legal person other than the manufacturer, OEM, importer or distributor that is responsible for operating the engine when installed in a type of non-road mobile machinery;
- (58) “information document” means the document that prescribes the information to be supplied by an applicant;
- (59) “information folder” means the totality of the folder or file of data, drawings, photographs, etc. supplied by the applicant to the technical service or the approval authority;
- (60) “information package” means the information folder and any test reports or other documents that the technical service or the approval authority have added to the information folder in the course of carrying out their functions;
- (61) “index to the information package” means the document in which the contents of the information package, suitably numbered or otherwise marked to clearly identify all pages, are listed;
- (62) “defeat strategy” means an emission control strategy that reduces the effectiveness of the emission controls under ambient or engine operating conditions encountered either during normal machine operation or outside the EU type-approval test procedures;
- (63) “emission control system” means any device, system or element of design which controls or reduces emissions;
- (64) “fuel system” means all components involved in the metering and mixture of the fuel;
- (65) “electronic control unit” means an engine's electronic device that is part of the emission control system and uses data from engine sensors to control engine parameters;
- (66) “exhaust after-treatment system” means a catalyst, particulate filter, deNO_x system, combined deNO_x particulate filter or any other emission-reducing device that is part of the emission control system but is installed downstream of the engine exhaust valves, with the exception of exhaust gas recirculation (EGR) and turbochargers;
- (67) “exhaust gas recirculation (EGR)” means a technology that is part of the emission control system and reduces emissions by routing exhaust gases that had been expelled from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion, with the exception of the use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion;
- (68) “tampering” means inactivation, adjustment or modification of the engine emission control system, including any software or other logical control elements of those systems, that has the effect, whether intended or not, of worsening the emissions performance of the engine;

- (69) “test cycle” means a sequence of test points, each with a defined speed and torque, to be followed by the engine when being tested under steady state or transient operating conditions;
- (70) “steady-state test cycle” means a test cycle in which engine speed and torque are held at a finite set of nominally constant values. Steady-state tests are either discrete mode tests or ramped-modal tests;
- (71) “transient test cycle” means a test cycle with a sequence of normalized speed and torque values that vary on a second-by-second basis with time;
- (72) “self-testing” means the performance of tests in his or her own facilities, the registration of the test results and the submission of a report, including conclusions, to the approval authority by a manufacturer who has been designated as technical service in order to assess the compliance with certain requirements;
- (73) “crankcase” means the enclosed spaces in, or external to, an engine which are connected to the oil sump by internal or external ducts through which gases and vapours can be emitted;
- (74) “regeneration” means an event during which emissions levels change while the after-treatment performance is being restored by design, being classified as continuous regeneration or infrequent (periodic) regeneration;
- (75) “emission durability period” means the number of hours used to determine the deterioration factors;
- (76) “deterioration factors” means the set of factors that indicate the relationship between emissions at the start and end of the emission durability period;
- (77) “virtual testing” means computer simulations, including calculations, undertaken to demonstrate the level of performance of an engine as an aid to decision-making without requiring the use of a physical engine;
- (78) “intermediate speed application” means an application for SI engines other than hand-held SI engines in which the installed engine is intended for operation at speeds substantially below 3600 rpm;
- (79) “rated speed application” means an application for SI engines other than hand-held SI engines in which the installed engine is intended for operation at a rated speed that is nominally 3600 rpm or higher.

The Commission shall be empowered to adopt delegated acts in accordance with Article 55 concerning the detailed technical specifications of the definitions in points (7), (8), (19), (27), (74) and (76). Those delegated acts shall be adopted by [31 December 2016].

Article 4

Engine categories

For the purposes of this Regulation, the following engine categories, subdivided into the sub-categories set out in Annex I, shall apply:

- (1) ‘Category NRE’, comprising:
 - (a) engines for non-road mobile machinery intended and suited to move, or to be moved by road or otherwise that are not excluded under Article 2(2) and are not included in any other category set out in points (2) to (10),

- (b) engines with a reference power of less than 560 kW used in place of engines of categories IWP, RLL or RLR;

(2) 'Category NRG', comprising engines having a reference power that is greater than 560 kW exclusively for use in generating sets.

Engines for generating sets other than those having the characteristics set out in the first sub-paragraph shall be included in the categories NRE or NRS, according to their characteristics;

(3) 'Category NRSh', comprising hand-held SI engines having a reference power that is less than 19 kW exclusively for use in hand-held machinery;

(4) 'Category NRS', comprising SI engines, having a reference power that is less than 56 kW and not included in category NRSh;

(5) 'Category IWP', comprising:

- (a) engines exclusively for use in inland waterway vessels, for their propulsion or intended for their propulsion, having a reference power that is greater than or equal to 37 kW,

- (b) engines with a reference power greater than 560 kW used in place of engines of category IWA subject to complying with the requirements of Article 23(8);

(6) 'Category IWA', comprising engines exclusively for use in inland waterway vessels, for auxiliary purposes or intended for auxiliary purposes, having a net power that is greater than 560 kW.

Auxiliary engines for inland waterway vessels other than those having the characteristics set out in the first sub-paragraph shall be included in the categories NRE or NRS, according to their characteristics;

(7) 'Category RLL', comprising engines exclusively for use in locomotives, for their propulsion or intended for their propulsion;

(8) 'Category RLR', comprising engines exclusively for use in railcars, for their propulsion or intended for their propulsion;

(9) 'Category SMB', comprising SI engines exclusively for use in snowmobiles.

Engines for snowmobiles other than those having the characteristics set out in the first sub-paragraph shall be included in the category NRE;

(10) 'Category ATS', comprising SI engines exclusively for use in all terrain and side-by-side vehicles (ATVs and SbS).

Engines for ATVs and SbS other than those having the characteristics set out in the first sub-paragraph shall be included in the category NRE.

An engine of a particular category intended for use in a variable speed application may also be used in place of an engine of the same category intended for use in a constant speed application. Variable speed engines of category IWP used in constant speed applications shall additionally comply with the requirements of Article 23(7) or Article 23(8), as applicable.

Engines for auxiliary rail vehicles and auxiliary engines for railcars shall be included in the categories NRE or NRS, according to their characteristics.

CHAPTER II

GENERAL OBLIGATIONS

Article 5

Obligations of Member States

1. Member States shall establish or appoint the approval authorities competent in matters concerning approval and the market surveillance authorities competent in matters concerning market surveillance in accordance with this Regulation. Member States shall notify the Commission of the establishment and appointment of such authorities.
2. The notification of the approval and market surveillance authorities shall include their name, their address, including their electronic address, and their area of responsibility. The Commission shall publish on its website a list and details of the approval authorities.
3. Member States shall only permit the placing on the market of engines, whether or not already installed in machinery, that are covered by a valid EU type-approval granted in accordance with this Regulation.

Member States shall only permit the placing on the market of machinery where engines that are covered by a valid EU type-approval granted in accordance with this Regulation are installed.
4. Member States shall not prohibit, restrict or impede the placing on the market of engines on grounds related to aspects of their construction and functioning covered by this Regulation, if they satisfy its requirements.
5. Member States shall organise and carry out market surveillance and the control of engines entering the market in accordance with Chapter III of Regulation (EC) No 765/2008 of the European Parliament and of the Council²¹.

Article 6

Obligations of approval authorities

1. Approval authorities shall ensure that manufacturers applying for EU type-approval comply with their obligations under this Regulation.
2. Approval authorities shall grant EU type-approval only to the engine types or engine families that satisfy the requirements of this Regulation.
3. Approval authorities shall make public by means of the Union central administrative platform referred to in Article 41, a register of all engine types and engine families, for which they have granted EU type-approval, containing at least the following information: trademark, designation of manufacturer, engine category, number of type-approval, and date of type-approval.

²¹ Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.08.2008, p. 30).

Article 7

Market surveillance measures

For EU type-approved engines, market surveillance authorities shall perform, on an adequate scale and on the basis of adequate samples, documentary checks and, where appropriate, physical and laboratory checks of engines. When doing so, they shall take account of established principles of risk assessment, of any complaints and of other relevant information.

Market surveillance authorities may require economic operators to make such documentation and information available as is deemed necessary for the purpose of carrying out their activities.

Where economic operators present test reports or certificates of conformity, market surveillance authorities shall take due account of such reports or certificates.

Article 8

Obligations of manufacturers

1. Manufacturers shall ensure that when their engines are placed on the market, they are manufactured and approved in accordance with the requirements set out in Chapters II and III of this Regulation.
2. For the purposes of approval of engines, manufacturers established outside the Union shall appoint a single representative established within the Union to represent them in their dealings with the approval authority.
3. Manufacturers established outside the Union shall appoint a single representative established within the Union for the purposes of market surveillance, which may be the representative referred to in paragraph 2 or a different representative.
4. Manufacturers shall be responsible to the approval authority for all aspects of the approval process and for ensuring conformity of production, whether or not they are directly involved in all stages of the construction of an engine.
5. In accordance with this Regulation, manufacturers shall ensure that procedures are in place for series production to remain in conformity with the approved type. Changes in design of an engine or its characteristics and changes in the requirements to which an engine is declared to conform shall be taken into account in accordance with Chapter VI.
6. In addition to the marking affixed to their engines in accordance with Article 31, manufacturers shall indicate on their engines made available on the market their name, registered trade name or registered trade mark and the address in the Union at which they can be contacted or, where that is not possible, on its packaging or in a document accompanying the engine.
7. Manufacturers shall ensure that, whilst they are responsible for an engine, storage or transport conditions do not jeopardise its compliance with the requirements set out in Chapters II and III.

Article 9

Obligations of manufacturers concerning their products that are not in conformity

1. Manufacturers who consider or have reason to believe that their engine that has been placed on the market is not in conformity with this Regulation shall immediately

conduct an investigation into the nature of the non-conformity and the likelihood of its occurrence. They shall take corrective action, based upon the outcome of the investigation, to ensure that engines in production are brought into conformity with the approved type or family in a timely manner. If proportionate to the nature of the non-conformity and its likely occurrence, the provisions of Article 38 shall apply.

Notwithstanding the requirements of the first sub-paragraph, the manufacturer will not be required to take corrective measures in respect of engines which are not in conformity with this Regulation as a result of modifications made after the engine has been placed on the market that have not been authorised by the manufacturer.

2. The manufacturer shall immediately inform the approval authority that granted the approval, giving details, in particular, of the non-conformity and of any corrective measures taken.
3. Manufacturers shall keep the information package referred to in Article 21(9) and a copy of the certificates of conformity referred to in Article 30 at the disposal of the approval authorities for a period of 10 years after the placing on the market of an engine.
4. Manufacturers shall, following a reasoned request from a national authority, provide that authority through the approval authority with a copy of the EU type-approval certificate for an engine, in a language which can be easily understood by the requesting authority.

Article 10

Obligations of manufacturer's representatives concerning market surveillance

The manufacturer's representative for market surveillance shall perform the tasks specified in the mandate received from the manufacturer. That mandate shall allow a representative to do at least the following:

- (1) have access to the information folder referred to in Article 20 and the certificates of conformity referred to in Article 30 so that they can be placed at the disposal of the approval authorities for a period of 10 years after the placing on the market of an engine;
- (2) following a reasoned request from an approval authority, provide that authority with all the information and documentation necessary to demonstrate the conformity of production of an engine;
- (3) cooperate with the approval or market surveillance authorities, at their request, on any action taken to eliminate any serious risk to safety posed by engines covered by their mandate.

Article 11

Obligations of importers

1. Importers shall place on the market only compliant engines which have received EU type-approval.
2. Before placing on the market an EU type-approved engine, importers shall ensure that an information package complying with Article 21(9) is available and that the engine bears the required marking and complies with Article 8(6).

3. Importers shall, for a period of 10 years after the placing on the market of the engine, keep a copy of the certificate of conformity at the disposal of the approval and market surveillance authorities, and ensure that the information package as referred to in Article 21(9) can be made available to those authorities, upon request.
4. Importers shall indicate their name, registered trade name or registered trade mark and the address at which they can be contacted on the engine or, where this is not possible, on its packaging or in a document accompanying the engine.
5. Importers shall make available instructions and information, as required in accordance with Article 41.
6. Importers shall ensure that, whilst they are responsible for an engine, storage or transport conditions do not jeopardise its compliance with the requirements set out in Chapters II and III.

Article 12

Obligations of importers concerning their products that are not in conformity

1. Importers who consider or have reason to believe that an engine is not in conformity with the requirements of this Regulation, and in particular that it does not correspond to its type-approval, shall not distribute the engine until it has been brought into conformity. Furthermore, they shall inform the manufacturer and the market surveillance authorities, as well as the approval authority that has granted the approval to that effect.
2. Importers who consider or have reason to believe that an engine which they have placed on the market is not in conformity with this Regulation shall immediately conduct an investigation into the nature of the non-conformity and the likelihood of its occurrence. They shall take corrective action, based upon the outcome of the investigation, to ensure that engines in production are brought into conformity with the approved type or family in a timely manner. If proportionate to the nature of the non-conformity and its likely occurrence, the provisions of Article 38 may apply.
3. Importers shall, following a reasoned request from a national authority, provide it with all the information and documentation necessary to demonstrate the conformity of an engine in a language which can be easily understood by that authority.

Article 13

Obligations of distributors

1. When making an engine available on the market, distributors shall act with due care in relation to the requirements of this Regulation.
2. Before making an engine available on the market, distributors shall verify that the engine bears the required statutory marking or EU type-approval mark, that required documents, instructions and safety information is available in a language that is understandable to the OEM, and that the importer and the manufacturer have complied with the requirements set out in Article 11(2) and (4) and Article 31(1) and (2).
3. Distributors shall ensure that, whilst they are responsible for an engine, storage or transport conditions do not jeopardise its compliance with the requirements set out in Chapters II and III.

Article 14

Obligations of distributors concerning their products that are not in conformity

1. Where distributors consider or have reason to believe that an engine is not in conformity with the requirements of this Regulation, they shall not distribute the engine until it has been brought into conformity.
2. Distributors who consider or have reason to believe that an engine which they have distributed is not in conformity with this Regulation shall inform the manufacturer or the manufacturer's representative to ensure that the corrective measures necessary to bring engines in production into conformity with the approved type or family are taken in accordance with Article 9(1) or Article 12(2).
3. Distributors shall, following a reasoned request from a national authority, ensure that the manufacturer provide the national authority with the information specified in Article 9(3) or that the importer provide the national authority with the information specified in Article 11(3).

Article 15

Cases in which obligations of manufacturers apply to importers and distributors

An importer or distributor shall be considered a manufacturer for the purposes of this Regulation and shall be subject to the obligations of the manufacturer under Articles 8, 9 and 10, where the importer or distributor makes an engine available on the market under its name or trademark or modifies the engine in such a way that compliance with the applicable requirements may be affected.

Article 16

Identification of economic operators

Economic operators shall, on request, identify the following to the approval and market surveillance authorities, for a period of five years from the date of placing on the market:

- (a) any economic operator who has supplied them with an engine;
- (b) any economic operator to whom they have supplied an engine.

CHAPTER III

SUBSTANTIVE REQUIREMENTS

Article 17

Exhaust emission requirements for EU type-approval

1. Manufacturers shall ensure that engine types and engine families are designed, constructed and assembled so as to comply with the requirements set out in Chapter II and Chapter III of this Regulation.

2. Engine types and engine families shall not exceed, as of the date for placing on the market of engines set out in Annex III, the exhaust emission limit values referred to as “Stage V” established in Annex II.

Where, in accordance with the parameters defining the engine family laid down in the delegated act, one engine family covers more than one power band, the parent engine (for the purposes of type-approval) and all engine types within the same family (for the purposes of conformity of production) shall, with respect to the applicable power bands:

- meet the most stringent emission limit values;
 - be tested using the test cycles that correspond to the most stringent emission limit values;
 - be subject to the earliest applicable dates for type-approval and placing on the market set out in Annex III.
3. The exhaust emissions of engine types and engine families shall be measured on the basis of the test cycles set out in Article 23 and in accordance with the provisions on the conduct of tests and measurements set out in Article 24.
 4. Engine types and engine families shall be designed to resist tampering and shall not make use of any defeat strategy.
 5. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 concerning the detailed technical specifications relating to the parameters used for the definition of the engine family and the detailed technical provisions to resist tampering as referred to in paragraph 4. Those delegated acts shall be adopted by [31 December 2016].

Article 18

Monitoring of emissions of in-service engines

1. The gaseous pollutant and particulate emissions of engine types or engine families in service shall be monitored by testing engines installed in non-road mobile machinery operated over their normal operating duty cycles. Such testing shall be conducted on engines that have been correctly maintained and shall comply with the provisions on the selection of engines, testing procedures and reporting of results for the different engine categories.

The Commission shall conduct pilot programmes with a view to developing appropriate testing procedures for those engine categories and sub-categories for which such testing procedures are not in place.

2. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 concerning the detailed arrangements with regard to the selection of engines, testing procedures and reporting of results referred to in paragraph 1. Those delegated acts shall be adopted by [31 December 2016].

CHAPTER IV

EU TYPE-APPROVAL PROCEDURES

Article 19

Application for EU type-approval

1. Manufacturers shall submit an application for an engine type or engine family EU type-approval to the approval authority of a Member State. Applications shall be accompanied by the information folder referred to in Article 20.
2. An engine conforming to the engine type or, in case of an engine family, to the parent engine characteristics described in the information folder shall be made available to the technical service responsible for conducting the approval tests.
3. In the case of an application for EU type-approval of an engine family, if the approval authority determines that, with regard to the selected parent engine as referred to in paragraph 2, the application submitted does not fully represent the engine family described in the information folder, an alternative and, if necessary, an additional parent engine which is considered by the approval authority to represent the engine family shall be provided for approval.
4. An application in respect of one engine type or engine family may not be submitted to more than one Member State. A separate application shall be submitted for each engine type or engine family to be approved.

Article 20

Information folder

1. The applicant shall provide the approval authority with an information folder.
2. The contents of information folder shall be defined in an implementing act and shall include the following:
 - (a) an information document;
 - (b) all relevant data, drawings, photographs and other information in relation to the engine;
 - (c) any additional information requested by the approval authority in the context of the application procedure.
3. The information folder may be supplied on paper or in an electronic format that is accepted by the technical service and by the approval authority.
4. The Commission shall be empowered to lay down templates for the information document and for the information folder by means of implementing acts. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

CHAPTER V

CONDUCT OF EU TYPE-APPROVAL PROCEDURES

Article 21

General provisions

1. The approval authority receiving the application shall grant EU type-approval to all engine types or engine families in conformity with all of the following:
 - (a) the particulars in the information folder;
 - (b) the requirements of this Regulation;
 - (c) the production arrangements referred to in Article 25.
2. Approval authorities shall not impose any other type-approval requirements with regard to exhaust emissions for non-road mobile machinery in which an engine is installed, if the engine meets the requirements specified in this Regulation.
3. Approval authorities shall not grant an EU type-approval to an engine type or engine family that does not meet the requirements set out in this Regulation, after the dates for the type-approval of engines referred to in Annex III for each engine sub-category.
4. EU type-approval certificates shall be numbered in accordance with a harmonized system laid down by the Commission by means of implementing acts.
5. The approval authority of each Member State shall:
 - (a) send monthly to the approval authorities of the other Member States a list of the EU type-approvals it has granted, refused to grant or withdrawn during that month, together with the reasons for its decision;
 - (b) inform without delay the approval authorities of the other Member States of its refusal or withdrawal of any engine approval, together with the reasons for its decision;
 - (c) on receiving a request from the approval authority of another Member State, send within one month:
 - a copy of the engine or engine family EU type-approval certificate, where this exists, together with the information package for each engine type or engine family which it has approved or refused to approve or withdrawn, and/or
 - the list of engines produced according to EU type-approvals granted, as described in Article 35.
6. The approval authority of each Member State shall yearly, or in addition on receiving a corresponding application, send the Commission a copy of the data sheet related to the engine types or engine families approved since the latest notification was made.
7. If so requested by the Commission, the approval authority shall submit the information referred to in paragraph 5 to the Commission as well.
8. Requirements referred to in paragraphs 5, 6 and 7 shall be deemed to be fulfilled through the upload of the relevant information or data to the Union central

administrative platform referred to in Article 42. The copy may also take the form of a secure electronic file.

9. The approval authority shall put together an information package consisting of the information folder accompanied by the test reports and all other documents added by the technical service or by the approval authority to the information folder in the course of carrying out their functions. The information package shall contain an index listing its contents, suitably numbered or otherwise marked so as to identify clearly all the pages and the format of each document such as to present a record of the successive steps in the management of the EU type-approval, in particular the dates of revisions and updating. The approval authority shall keep information contained in the information package available for a period of 10 years after the end of validity of the EU type-approval concerned.
10. The Commission shall be empowered to adopt by means of implementing acts:
 - (a) the method for establishing the harmonized numbering system referred to in paragraph 4;
 - (b) the single format of the data sheet to be filled for each engine type or engine family that was EU type-approved by the approval authority of each Member State referred to in point (a) of paragraph 5;
 - (c) the template for the list of engines produced according to EU type-approvals granted to be filled in by the approval authority of each Member State referred to in point (c) of paragraph 5;
 - (d) the single format of the data sheet for related engine types or engine families approved since the latest notification was made, to be filled in by the approval authority of each Member State referred to in paragraph 6.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

Article 22

Specific provisions concerning the EU type-approval certificate

1. The EU type-approval certificate shall contain, as attachments, the following:
 - (a) the information package referred to in Article 21(9);
 - (b) the test results;
 - (c) the name(s) and specimen(s) of the signature(s) of the person(s) authorised to sign certificates of conformity and a statement of their position in the company.
2. The Commission shall lay down a template for the EU type-approval certificate.
3. In respect of each type of engine, the approval authority shall:
 - (a) complete all the relevant sections of the EU type-approval certificate, including the test results sheet appended thereto;
 - (b) compile the index to the information package;
 - (c) issue the completed certificate, together with its attachments, to the applicant without delay.

4. In the case of an EU type-approval for which, in accordance with Article 33, restrictions have been imposed as to its validity, or certain provisions of this Regulation have been waived, the EU type-approval certificate shall specify those restrictions or waivers.
5. The Commission shall be empowered to adopt by means of implementing acts the template for the EU type-approval certificate and for the test results sheet referred to in point (a) of paragraph 3. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

Article 23

Tests required for EU type-approval

1. Compliance with the technical prescriptions laid down in this Regulation shall be demonstrated by means of appropriate tests performed by designated technical services.

The technical test and measurement procedures and the specific equipment and tools prescribed to perform those tests shall be those laid down in Article 24.
2. The manufacturer shall make available to the approval authority as many engines as are required under the relevant delegated acts for the performance of the required tests.
3. The required tests shall be performed on engines which are representative of the type to be approved.

Notwithstanding the requirements of the first sub-paragraph, the manufacturer may select, in agreement with the approval authority, an engine which, while not representative of the type to be approved, combines a number of the most unfavourable features with regard to the required level of performance. Virtual testing methods may be used to aid decision-making during the selection process.
4. For the purposes of conducting the EU type-approval tests, the cycles that apply are set out in Annex IV. The test cycles applicable to each engine type included in the EU type-approval shall be indicated in the EU type-approval information document.
5. The parent engine shall be tested on a dynamometer using the applicable NRSC test cycle identified in Annex IV in the Tables IV-1 to IV-10. At the choice of the manufacturer this test may be conducted using the discrete-mode or the ramped-modal test method. Except in the cases identified in paragraph 7 and 8, a variable speed engine of a particular category used in a constant speed application of the same category does not require to be tested using the applicable constant speed steady-state test cycle.
6. In case of a constant speed engine with a governor that can be set to alternative speeds, the requirements of paragraph 5 shall be met at each applicable constant speed and the EU type-approval information document shall indicate the speeds that apply for each engine type.
7. In case of an engine of category IWP intended to be used for both variable speed and constant speed applications, the requirements of paragraph 5 shall be met for each applicable steady-state test cycle separately and the EU type-approval information

document shall indicate each steady-state test cycle for which this requirement was fulfilled.

8. In case of an engine of category IWP having a reference power greater than 560 kW that is intended for use in place of an engine of category IWA in accordance with the second subparagraph of Article 4, the requirements of paragraph 5 shall be met separately for each applicable steady-state test cycle set out in both Tables IV-5 and IV-6 of Annex IV, and the type-approval information document shall indicate each steady-state test cycle for which this requirement was fulfilled.
9. Except for engines type-approved pursuant to Article 32(4), variable speed engines of category NRE having a net power that is greater than or equal to 19 kW but not more than 560 kW shall in addition to fulfilling the requirements of paragraph 5 also be tested on a dynamometer using the transient test cycle identified in Table IV-11 of Annex IV.
10. Engines of sub-categories NRS-v-2b and NRS-v-3 having a maximum speed less than or equal to 3400 rpm shall in addition to fulfilling the requirements of paragraph 5 also be tested on a dynamometer using the transient test cycle identified in Table IV-12 of Annex IV.
11. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 laying down the detailed technical specifications and characteristics of the steady-state and transient test cycles referred to in this Article. Those delegated acts shall be adopted by [31 December 2016].
12. The Commission shall be empowered to adopt by means of implementing acts the single format of the tests required for EU type-approval. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

Article 24

Conduct of measurements and tests for EU type-approval

1. Exhaust emission laboratory test results for all engines subject to this Regulation shall be adjusted to include deterioration factors appropriate to the emission durability periods specified in Annex V.
2. An engine type or engine family shall meet the emission limits set out in this Regulation on the appropriate reference fuels or fuel combinations included in the following list:
 - diesel;
 - petrol;
 - petrol/oil mixture, for two stroke SI engines;
 - natural gas/bio methane;
 - liquid petroleum gas (LPG);
 - ethanol.
3. For the conduct of measurements and tests, the technical requirements shall be met in respect of the following aspects:
 - (a) apparatus & procedures for conduct of tests;

- (b) apparatus & procedures for emission measurement & sampling;
 - (c) methods for data evaluation & calculations;
 - (d) method for establishing deterioration factors;
 - (e) for engines of category NRE, NRG, IWP, IWA, RLR, NRS, NRSh complying with “Stage V” emission limits as defined in Annex II:
 - i. method for accounting for emissions of crankcase gases,
 - ii. method for accounting for infrequent regeneration of after-treatment systems;
 - (f) for electronically controlled engines of categories NRE, NRG, IWP, IWA, RLL and RLR, complying with “Stage V” emission limits as defined in Annex II and that use electronic control to determine both the quantity and timing of injecting fuel or that use electronic control to activate, de-activate or modulate the emission control system used to reduce NO_x:
 - i. technical requirements on emission control strategies including documentation required to demonstrate these strategies,
 - ii. technical requirements on NO_x control measures including the method to demonstrate these technical requirements,
 - iii. technical requirements on the area associated with the relevant NRSC cycle, within which there is control on the amount that the emissions shall be permitted to exceed the limit values in Annex II,
 - iv. the selection by the technical service of additional measurement points from within the control area during the emission bench test.
4. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 of this Regulation setting out:
- (a) the methodology for adapting the emission laboratory test results to include the deterioration factors referred to in paragraph 1;
 - (b) the technical characteristics of the reference fuels listed in this paragraph for approval tests and to verify the conformity of production referred to in paragraph 2;
 - (c) the detailed technical requirements and characteristics for the conduct of measurements and tests referred to in paragraph 3;
 - (d) the method for the measurement of PN, taking account of the specifications given in the 06 series of UNECE Regulation No. 49;
 - (e) the detailed technical requirements for the testing of fully and partially gaseous fuelled engines referred to in Annex II.

Article 25

Conformity of production arrangements

1. An approval authority which grants an EU type-approval shall take the necessary measures to verify, if necessary in cooperation with the approval authorities of the other Member States, that adequate arrangements have been made to ensure that the

engines in production will conform to the approved type with respect to the requirements of this Regulation.

2. An approval authority which grants an engine family EU type-approval shall take the necessary measures to verify that certificates of conformity issued by the manufacturer conform to the requirements of Article 30. To that end, the approval authority shall verify that a sufficient number of samples of certificates of conformity conform to the requirements of Article 30 and that the manufacturer has made adequate arrangements to ensure that the data in the certificates of conformity are correct.
3. An approval authority which has granted an EU type-approval shall take the necessary measures in relation to that approval to verify, if necessary in cooperation with the approval authorities of the other Member States, that the arrangements referred to in paragraphs 1 and 2 of this Article continue to be adequate so that engines in production will continue to conform to the approved type and that certificates of conformity continue to comply with the requirements of Article 30.
4. In order to verify that an engine conforms to the approved type, the approval authority which has granted the EU type-approval may carry out any of the checks or tests required for the EU type-approval on samples taken at the premises of the manufacturer, including the manufacturer's production facilities.
5. When an approval authority which has granted an EU type-approval establishes that the arrangements referred to in paragraphs 1 and 2 of this Article are not being applied, deviate significantly from the arrangements and control plans agreed, have ceased to be applied or are no longer considered to be adequate, even though production is continuing, it shall take the necessary measures to ensure that the procedure for conformity of production is followed correctly or shall withdraw the EU type-approval.
6. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 laying down the detailed measures to be taken and procedures to be followed by the approval authorities to ensure that the engines in production conform to the approved type. Those delegated acts shall be adopted by [31 December 2016].

CHAPTER VI

AMENDMENTS AND VALIDITY OF EU TYPE-APPROVALS

Article 26

General provisions

1. The manufacturer shall inform without delay the approval authority that granted the EU type-approval of any change in the particulars recorded in the information package.

That approval authority shall decide which of the procedures laid down in Article 27 is to be followed.

Where necessary, the approval authority may decide, after consulting the manufacturer, that a new EU type-approval is to be granted.

2. An application for the amendment of an EU type-approval shall be submitted only to the approval authority that granted the original EU type-approval.
3. If the approval authority finds that, for the purposes of making an amendment, inspections or tests need to be repeated, it shall inform the manufacturer accordingly.
The procedures referred to in Article 27 shall apply only if, on the basis of those inspections or tests, the approval authority concludes that the requirements for EU type-approval continue to be fulfilled.

Article 27

Revisions and extensions of EU type-approvals

1. If particulars recorded in the information package have changed, without requiring inspections or tests to be repeated, the amendment shall be designated a ‘revision’.
In such cases, the approval authority shall issue the revised pages of the information package as necessary, marking each of the revised pages to show clearly the nature of the change and the date of reissue. A consolidated, updated version of the information package, accompanied by a detailed description of the changes, shall be deemed to meet this requirement.
2. The amendment shall be designated an ‘extension’ when the particulars recorded in the information package have changed and any of the following occurs:
 - (a) further inspections or tests are required;
 - (b) any information on the EU type-approval certificate, with the exception of its attachments, has changed;
 - (c) new requirements set out in the delegated acts of this Regulation become applicable to the approved engine type or engine family.In the event of an extension, the approval authority shall issue an updated EU type-approval certificate denoted by an extension number, incremented in accordance with the number of successive extensions already granted. That approval certificate shall clearly show the reason for the extension and the date of reissue.
3. Whenever amended pages or a consolidated, updated version are issued, the index to the information package attached to the approval certificate shall be amended accordingly to show the date of the most recent extension or revision, or the date of the most recent consolidation of the updated version.
4. No amendment to the EU type-approval of an engine type or engine family shall be required if the new requirements referred to in point (c) of paragraph 2 are, from a technical point of view, irrelevant to that engine type or engine family with regard to its emission performance.

Article 28

Issue and notification of amendments

1. In the case of an extension, all relevant sections of the EU type-approval certificate, the attachments thereto, and the index to the information package shall be updated. The updated certificate and its attachments shall be issued to the applicant without delay.

2. In the case of a revision, the revised documents or the consolidated, updated version, as appropriate, including the revised index to the information package, shall be issued by the approval authority to the applicant without delay.
3. The approval authority shall notify any amendment made to EU type-approvals to the approval authorities of the other Member States in accordance with the procedures set out in Article 21.

Article 29

Termination of validity

1. EU type-approvals shall be issued for an unlimited duration.
2. An EU type-approval of an engine shall become invalid in any of the following cases:
 - (a) new requirements applicable to the approved engine type become mandatory for the making available on the market, and it is not possible to update the EU type-approval accordingly;
 - (b) production of the approved engine type or engine family is definitively discontinued voluntarily;
 - (c) the validity of the approval expires by virtue of a restriction in accordance with Article 33(6);
 - (d) the approval has been withdrawn in accordance with Article 25(5), Article 37(1) or Article 38(3).
3. Where only one engine type within an engine family becomes invalid, the EU type-approval of the engine family in question shall lose validity only in so far as the particular engine type is concerned.
4. When production of a particular type of engine is definitively discontinued, the manufacturer shall notify the approval authority that granted the EU type-approval for that engine.

Within one month of receiving the notification referred to in the first subparagraph, the approval authority which granted the EU type-approval for the engine shall inform the approval authorities of the other Member States accordingly.

5. Without prejudice to paragraph 4, in cases where an EU type-approval of an engine type or engine family is due to become invalid, the manufacturer shall notify the approval authority that granted the EU type-approval.

The approval authority that granted the EU type-approval shall without delay communicate all relevant information to the approval authorities of the other Member States.

The communication referred to in the second subparagraph shall specify, in particular, the date of production and the engine identification number of the last engine produced.

6. Requirements referred to in paragraphs 4 and 5 shall be deemed to be fulfilled through upload of the relevant information to the Union central administrative platform referred to in Article 42. The communication documents may also take the form of a secure electronic file.

CHAPTER VII

CERTIFICATE OF CONFORMITY AND MARKINGS

Article 30

Certificate of conformity

1. The manufacturer, in its capacity as the holder of an engine type or engine family EU type-approval, shall deliver a certificate of conformity to accompany each engine which is manufactured in conformity with the approved engine type.

Such a certificate shall be delivered free of charge together with the engine and shall accompany the machinery in which the engine is installed. Its delivery may not be made dependent on an explicit request or on the submission of additional information to the manufacturer.

For a period of 10 years after the production date of the engine, the engine manufacturer shall, at the request of the engine owner, issue a duplicate of the certificate of conformity against a payment not exceeding the cost of issuing it. The word ‘duplicate’ shall be clearly visible on the face of any duplicate certificate.

2. The Commission shall set out the template for the certificate of conformity to be used by the manufacturer.
3. The certificate of conformity shall be drawn up in at least one of the official languages of the Union. Any Member State may request the certificate of conformity to be translated into its own official language or languages.
4. The person(s) authorised to sign certificates of conformity shall be in the manufacturer’s organisation and shall be duly authorised by the management to fully engage the legal responsibility of the manufacturer with respect to the design and the construction or with respect to the conformity of the production of the engine.
5. The certificate of conformity shall be completed in its entirety and shall not contain restrictions as regards the use of the engine other than those provided for in this Regulation or any of the delegated acts adopted pursuant to this Regulation.
6. The certificate of conformity shall, for engine types or engine families approved in accordance with Article 33(2), display in its title the phrase ‘For engines type-approved in application of Article 31 of Regulation (EU) No xx/xx of the European Parliament and of the Council of [date] on requirements relating to emission limits and type-approval for internal combustion engines for non-road mobile machinery (provisional approval)’.
7. The Commission shall be empowered to adopt by means of implementing acts the template for the certificate of conformity, including the technical features designed to prevent forgery. To that end, the implementing acts shall provide the security printing features protecting the paper used in the certificate. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

Article 31

Marking of engines

1. The manufacturer of an engine shall affix a marking to each unit manufactured in conformity with the approved type.
2. Before leaving the production line the engines must bear the marking required by this Regulation.
3. For an engine already installed in machinery, the engine or the engine part bearing the statutory mark may be replaced.
4. The Commission shall be empowered to adopt by means of implementing acts the template for the marking referred to in paragraph 1, including its mandatory essential information. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].
5. The Commission shall also be empowered to adopt delegated acts in accordance with Article 55 concerning the conditions and detailed technical requirements for the replacement of engines or engine parts bearing the marking referred to in paragraph 3. Those delegated acts shall be adopted by [31 December 2016].

CHAPTER VIII

EXEMPTIONS

Article 32

General exemptions

1. The requirements of Article 5(2) and (3) and of Article 17(2) shall not apply to engines for use by the armed forces.
2. Without prejudice to the provisions of Article 31, a manufacturer may deliver an engine separately from its exhaust after-treatment system to an OEM.
3. Notwithstanding the requirements of Article 5(3), Member States shall authorise the temporary placing on the market, for the purposes of field testing, of engines that have not been EU type-approved in accordance with this Regulation.
4. Notwithstanding the requirements of Article 17(2), Member States may authorise the EU type-approval and placing on the market of engines that meet the ATEX emission limit values set out in Annex V, under the condition that the engines are intended for installation in a machine to be used in potentially explosive atmospheres, as defined in Directive 2014/34/EU of the European Parliament and the Council²², and certified as meeting all of the following requirements:
 - (a) Equipment category 2 or 3;
 - (b) Machine Group I or Machine Group II;
 - (c) Temperature class T3 or higher (not exceeding 200°C).
5. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 concerning the detailed technical specifications and conditions for:

²² Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (recast) (OJ L 96, 29.3.2014, p. 309).

- (a) a manufacturer to deliver an engine separately from its exhaust after-treatment system to an OEM, as referred to in paragraph 2;
- (b) the temporary placing on the market, for the purposes of field testing, of engines that have not been EU type-approved, as referred to in paragraph 3;
- (c) the EU type-approval and placing on the market of engines that meet the ATEX emission limit values set out in Annex V, as referred to in paragraph 4.

Those delegated acts shall be adopted by [31 December 2016].

Article 33

Exemptions for new technologies or new concepts

1. The manufacturer may apply for a type-approval in respect of an engine type or engine family that incorporates new technologies or concepts which are incompatible with one or more requirements of this Regulation.
2. The approval authority shall grant the type-approval referred to in paragraph 1 where all of the following conditions are met:
 - (a) the application states the reasons why the technologies or concepts in question make the engine type or engine family incompatible with one or more of the requirements in this Regulation;
 - (b) the application describes the environmental implications of the new technology and the measures taken in order to ensure at least an equivalent level of environmental protection as that provided by the requirements from which exemption is sought;
 - (c) test descriptions and results are presented which prove that the condition in point (b) is met.
3. The granting of such type-approval exempting new technologies or new concepts shall be subject to authorisation by the Commission. That authorisation shall be given by means of an implementing act.
4. The approval authority may issue the type-approval pending the decision on authorisation by the Commission, but it shall be provisional, shall be valid only in the territory of that Member State, and shall only be valid in respect of a type of engine covered by the exemption sought. The approval authority shall inform the Commission and the other Member States that it has issued such a provisional type-approval without delay by means of a file containing the information referred to in paragraph 2.

The provisional nature and the limited territorial validity shall be apparent from the heading of the type-approval certificate and the heading of the certificate of conformity.
5. Other approval authorities may decide to accept the provisional approval referred to in paragraph 4 within their territory. Where they do so, they should inform the relevant approval authority and the Commission, in writing.

6. Where appropriate, the authorisation by the Commission referred to in paragraph 3 shall also specify whether it is subject to any restrictions. In all cases, the type-approval shall be valid for at least 36 months.
7. If the Commission decides to refuse authorisation, the approval authority shall immediately give notice to the holder of the provisional type-approval referred to in paragraph 3, if such an approval has been issued, that the provisional approval will be revoked six months after the date of the Commission's refusal.

Notwithstanding the Commission's decision to refuse authorisation, engines manufactured in conformity with the provisional approval before it ceases to be valid may be placed on the market in any Member State that accepted the provisional approval.

8. Requirements referred to in paragraphs 4 and 5 shall be deemed to be fulfilled through upload of the relevant information to the Union central administrative platform referred to in Article 42. The communication documents may also take the form of a secure electronic file.
9. The Commission shall be empowered to adopt by means of implementing acts the authorisation referred to in paragraph 3. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2).
10. The Commission shall be empowered to adopt by means of implementing acts the harmonised templates for the type-approval certificate and the certificate of conformity referred to in paragraph 4, including its mandatory essential information. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

Article 34

Subsequent adaptation of delegated and implementing acts

1. Where the Commission authorises the granting of an exemption pursuant to Article 33, it shall immediately take the necessary steps to adapt the delegated or implementing acts concerned to technological developments.

Where the exemption authorised under the terms of Article 33 relates to a matter that is defined in a UNECE regulation, the Commission shall propose an amendment to the relevant UNECE regulation in accordance with the procedure applicable under the Revised 1958 Agreement.

2. As soon as the relevant acts have been amended, any restriction imposed by the Commission decision authorising the exemption shall be lifted.

If the necessary steps to adapt the delegated or implementing acts have not been taken, the Commission may, at the request of the Member State which granted the approval, authorise the Member State to extend the type-approval by means of a decision in the form of an implementing act, adopted in accordance with the examination procedure referred to in Article 54(2).

CHAPTER IX

PLACING ON THE MARKET

Article 35

Reporting obligations for manufacturers

A manufacturer shall send to the approval authority which granted the EU type-approval, within 45 days after the end of each calendar year, and without delay after each application date when the requirements of this Regulation change, and immediately following any additional date that the authority may stipulate, a list containing the range of identification numbers for each engine type produced in accordance with the requirements of this Regulation and in conformity with the EU type-approval since the latest reporting was made, or since the requirements of this Regulation were first applicable.

Where this is not identified by the engine coding system, the list referred to in the first subparagraph must specify correlations of the identification numbers to the corresponding engine types or engine families and to the EU type-approval numbers.

The list referred to in the first subparagraph shall also indicate clearly any case where the manufacturer ceases to produce an approved engine type or engine family.

The manufacturer shall retain copies of the lists for a minimum period of 20 years after the end of validity of the EU type-approval concerned.

Article 36

Verification measures

1. The approval authority of a Member State granting an EU type-approval shall take the necessary measures in relation to that approval to verify, where appropriate in cooperation with the approval authorities of the other Member States, the identification numbers of those engines produced in conformity with the requirements of this Regulation.
2. An additional verification of the identification numbers may take place in conjunction with the control of conformity of production as described in Article 25.
3. With regard to the verification of the identification numbers, the manufacturer or the manufacturer's agents established in the Union shall without delay give, on request, to the responsible approval authority all the information needed related to the manufacturer's purchasers together with the identification numbers of the engines reported as produced in accordance with Article 35. Where engines are sold to a manufacturer of machinery, further information is not required.
4. If, at the request of the approval authority, the manufacturer is not able to verify the engine marking requirements specified in Article 31, the approval granted in respect of the corresponding engine type or family pursuant to this Regulation may be withdrawn. The information procedure shall be carried out as set out in Article 36(4).

CHAPTER X

SAFEGUARD CLAUSES

Article 37

Engines not in conformity with the approved type

1. Where engines accompanied by a certificate of conformity or bearing an approval mark do not conform to the approved type or family, the approval authority which granted the EU type-approval shall take the necessary measures, including the withdrawal of EU type-approval where the action taken by the manufacturer is inadequate, to ensure that engines in production are brought into conformity with the approved type or family. The approval authorities of that Member State shall advise those of the other Member States of the measures taken.
2. For the purposes of paragraph 1, deviations from the particulars set out in the EU type-approval certificate or in the information package, where these deviations have not been authorized in accordance with the provisions of Chapter VI, shall be deemed to constitute failure to conform to the approved type or family.
3. If an approval authority finds that engines accompanied by a certificate of conformity or bearing an approval mark issued in another Member State do not conform to the approved type or family, it may ask the approval authority which granted the EU type-approval to verify that engines in production continue to conform to the approved type or family. On receipt of such a request, the approval authority which granted the EU type-approval shall take the requisite action as soon as possible, and at the latest within three months of the date of the request.
4. The approval authorities of the Member States shall inform each other within one month of any withdrawal of EU type-approval and of the reasons for such measure.
5. If the approval authority that granted the EU type-approval disputes the non-conformity notified to it, the Member States concerned shall endeavour to settle the dispute. The Commission shall be kept informed and, where necessary, shall hold appropriate consultations with a view to reaching a settlement.

Article 38

Recall of engines

1. Where a manufacturer which has been granted an EU type-approval is obliged, in accordance with Article 20(1) of Regulation (EC) No 765/2008, to recall engines placed on the market, whether installed or not in machinery, due to the fact that the engines represent a serious infringement of this Regulation with regard to the protection of the environment, that manufacturer shall immediately inform the approval authority that granted the EU engine type-approval.
2. The manufacturer shall propose to the approval authority a set of appropriate remedies to neutralise the serious infringement referred to in paragraph 1. The approval authority shall communicate the proposed remedies to the approval authorities of the other Member States without delay.

The approval authorities shall ensure that the remedies are effectively implemented in their respective Member States.

3. If the remedies are considered to be insufficient or not implemented quickly enough by the approval authority concerned, it shall inform the approval authority that granted the EU type-approval without delay.

The approval authority that granted the EU type-approval shall then inform the manufacturer. If the manufacturer does not then propose and implement effective corrective measures, the approval authority which granted the EU type-approval shall take all protective measures required, including the withdrawal of the EU type-approval. In the case of withdrawal of the EU type-approval, the approval authority shall within one month of such withdrawal notify the manufacturer, the approval authorities of the other Member States and the Commission by registered letter or equivalent electronic means.

Article 39

Notification of decisions and remedies available

1. All decisions taken pursuant to this Regulation and all decisions refusing or withdrawing EU type-approval, prohibiting or restricting the placing on the market of an engine or requiring withdrawal of an engine from the market, shall state in detail the reasons on which they are based.
2. Any such decision shall be notified to the party concerned who shall, at the same time, be informed of the remedies available to it under the laws in force in the Member State concerned and of the time limits allowed for the exercise of such remedies.

CHAPTER XI

INTERNATIONAL REGULATIONS AND PROVISION OF TECHNICAL INFORMATION

Article 40

Acceptance of equivalent engine type-approvals

1. The Union may acknowledge, in the framework of multilateral or bilateral agreements between the Union and third countries, the equivalence between the conditions and provisions for type-approval of engines established by this Regulation and the procedures established by international regulations or regulations of third countries.
2. Type-approvals granted and approval marking in conformity with UNECE regulations or amendments thereto which the Union has voted in favour of or to which the Union has acceded as set out in the delegated act referred to in paragraph 4(a) shall be recognised as equivalent to type-approvals granted and approval marking in accordance with this Regulation.

3. Type-approvals granted in conformity with Union acts as set out in the delegated act referred to in paragraph 4(b) shall be recognised as equivalent to type-approvals granted in accordance with this Regulation.
4. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 setting out:
 - (a) the list of UNECE regulations or amendments thereto which the Union has voted in favour of or to which the Union has acceded which shall apply to EU type-approval of engines and engine families to be installed in non-road mobile machinery;
 - (b) the list of Union acts granting type-approvals.

Those delegated acts shall be adopted by [31 December 2016].

Article 41

Information intended for OEMs and end-users

1. A manufacturer may not supply to OEMs or end-users any technical information related to the particulars provided for in this Regulation which diverges from the particulars approved by the approval authority.
2. The manufacturer shall make available to OEMs all relevant information and instructions that are necessary for the correct installation of the engine into the machinery, including a description of any special conditions or restrictions linked to the installation or use of an engine.
3. Manufacturers shall make available to OEMs all relevant information and necessary instructions intended for the end-user, notably describing any special conditions or restrictions linked to the use of an engine.
4. Notwithstanding the requirements in paragraph 3, manufacturers shall make available to OEMs the value of the carbon dioxide (CO₂) emissions determined during the EU type-approval process and instruct the OEMs to communicate this information to the end-user of the machinery where the engine is intended to be installed.
5. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 setting out the details of the information and instructions referred to in paragraphs 2, 3 and 4. Those delegated acts shall be adopted by [31 December 2016].

Article 42

Union central administrative platform and database

1. The Commission shall set up a Union central administrative digital platform for the exchange of data and information related to EU type-approvals in electronic format. The platform shall be used for the exchange of data and information between the approval authorities, or between the approval authorities and the Commission, which takes place in the framework of this Regulation.

2. The Union central administrative digital platform shall also comprise a database where any information of relevance in respect of EU type-approvals granted in accordance with this Regulation shall be centrally gathered and made accessible to the approval authorities and to the Commission. The database shall connect national databases to the Union central database, where agreed with the Member States concerned.
3. Subsequent to the implementation of paragraphs 1 and 2, the Commission shall extend the Union central administrative digital platform with modules which shall allow for:
 - (a) the exchange of data and information referred to in this Regulation between manufacturers, technical services, approval authorities and the Commission;
 - (b) public access to certain information and data related to the results of type-approvals and in-service conformity tests.
4. The Commission shall be empowered to adopt by means of implementing acts the detailed technical requirements and procedures necessary for setting up the Union central administrative platform and database referred to in this Article. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 54(2) by [31 December 2016].

CHAPTER XII

DESIGNATION AND NOTIFICATION OF TECHNICAL SERVICES

Article 43

Requirements relating to technical services

1. Designating approval authorities shall ensure before they designate a technical service pursuant to Article 45 that the technical service meets the requirements laid down in paragraphs 2 to 9 of this Article.
2. Without prejudice to Article 46(1), a technical service shall be established under the national law of a Member State and have legal personality.
3. A technical service shall be a third-party body independent of the process of design, manufacturing, supply or maintenance of the engine it assesses.

A body belonging to a business association or professional federation representing undertakings involved in the design, manufacturing, provision, assembly, use or maintenance of engines which it assesses, tests or inspects may, on condition that its independence and the absence of any conflict of interest are demonstrated, be considered as fulfilling the requirements of the first subparagraph.
4. Neither the technical service, nor its top-level management nor the personnel responsible for carrying out the categories of activities for which they are designated in accordance with Article 45(1) shall be the designer, manufacturer, supplier or maintainer of the engines which they assess, nor represent parties engaged in those activities. This shall not preclude the use of assessed engines referred to in paragraph 3 of this Article that are necessary for the operation of the technical service or the use of such engines for personal purposes.

A technical service shall ensure that the activities of its subsidiaries or subcontractors do not affect the confidentiality, objectivity or impartiality of the categories of activities for which it has been designated.
5. A technical service and its personnel shall carry out the categories of activities for which it has been designated with the highest degree of professional integrity and the requisite technical competence in the specific field and shall be free from all pressures and inducements, particularly financial, which might influence its judgment or the results of its assessment activities, especially such pressures or inducements emanating from persons or groups of persons with an interest in the results of those activities.
6. A technical service shall demonstrate that it is capable of carrying out all the categories of activities for which it has been designated in accordance with Article 45(1), by demonstrating to the satisfaction of its designating approval authority that it has:
 - (a) personnel with appropriate skills and specific technical knowledge and vocational training as well as sufficient and appropriate experience to perform the task;
 - (b) descriptions of the procedures relevant to the categories of activities for which it is seeking to be designated, so ensuring the transparency and reproducibility of those procedures;

- (c) procedures for the performance of the categories of activities for which it is seeking to be designated, which take due account of the degree of complexity of the technology of the engine in question, and of whether the engine is manufactured in a mass or serial production process; and
- (d) the means necessary to perform in an appropriate manner the tasks connected with the categories of activities for which it is seeking to be designated and that it has access to all the necessary equipment or facilities.

In addition, it shall demonstrate to the designating approval authority its compliance with the standards laid down in the delegated acts adopted pursuant to Article 46 which are relevant to the categories of activities for which it is designated.

- 7. The impartiality of the technical services, their top-level management and the assessment personnel shall be guaranteed. They shall not engage in any activity that might conflict with their independence of judgment or integrity in relation to the categories of activities for which they are designated.
- 8. Technical services shall take out liability insurance related to their activities unless liability is assumed by the Member State in accordance with national law, or the Member State itself is directly responsible for the conformity assessment.
- 9. The personnel of a technical service shall observe professional secrecy with regard to all information obtained in carrying out their tasks under this Regulation or any provision of national law giving effect to it, except in relation to the designating approval authority or where required by Union or national law. Proprietary rights shall be protected.

Article 44

Subsidiaries of and subcontracting by technical services

- 1. Technical services may subcontract some of their activities for which they have been designated in accordance with Article 45(1) or have those activities carried out by a subsidiary only with the agreement of their designating approval authority.
- 2. Where a technical service subcontracts specific tasks connected with the categories of activities for which it has been designated or has recourse to a subsidiary, it shall ensure that the subcontractor or the subsidiary meet the requirements set out in Article 43 and shall inform the designating approval authority accordingly.
- 3. Technical services shall take full responsibility for the tasks performed by any of their subcontractors or subsidiaries, wherever these are established.
- 4. Technical services shall keep at the disposal of the designating approval authority the relevant documents concerning the assessment of the qualifications of the subcontractor or the subsidiary and the tasks performed by them.

Article 45

Designation of technical services

- 1. Technical services shall be designated for one or more of the following categories of activities, depending on their field of competence:
 - (a) category A: technical services which carry out in their own facilities the tests referred to in this Regulation;

- (b) category B: technical services which supervise the tests referred to in this Regulation, where such tests are performed in the manufacturer's facilities or in the facilities of a third party;
 - (c) category C: technical services which assess and monitor on a regular basis the manufacturer's procedures for controlling conformity of production;
 - (d) category D: technical services which supervise or perform tests or inspections for the surveillance of conformity of production.
2. An approval authority may be designated as a technical service for one or more of the activities referred to in paragraph 1.
 3. Technical services of a third country, other than those designated in accordance with Article 45, may be notified for the purposes of Article 49, but only if such an acceptance of technical services is provided for by a bilateral agreement between the Union and the third country concerned. This shall not prevent a technical service established under the national law of a Member State in accordance with Article 43(2) from establishing subsidiaries in third countries, provided that the subsidiaries are directly managed and controlled by the designated technical service.

Article 46

Accredited in-house technical services of the manufacturer

1. An accredited in-house technical service of a manufacturer may be designated only for category A activities with regard to technical requirements for which self-testing is allowed by a delegated act adopted pursuant to this Regulation. That technical service shall constitute a separate and distinct part of the undertaking and shall not be involved in the design, manufacturing, supply or maintenance of the engines it assesses.
2. An accredited in-house technical service shall meet the following requirements:
 - (a) in addition to being designated by the approval authority of a Member State it shall be accredited by a national accreditation body as defined in point 11 of Article 2 of Regulation (EC) No 765/2008 and in accordance with the standards and procedure referred to in Article 47 of this Regulation;
 - (b) the accredited in-house technical service and its personnel shall be organisationally identifiable and have reporting methods within the undertaking of which they form part which ensure their impartiality and demonstrate it to the relevant national accreditation body;
 - (c) neither the accredited in-house technical service nor its personnel shall engage in any activity that might conflict with their independence of judgment or integrity in relation to the categories of activities for which they have been designated;
 - (d) the accredited in-house technical service shall supply its services exclusively to the undertaking of which it forms part.
3. An accredited in-house technical service need not be notified to the Commission for the purposes of Article 49, but information concerning its accreditation shall be given by the undertaking of which it forms part or by the national accreditation body to the designating approval authority at the request of that authority.

4. The Commission shall be empowered to adopt delegated acts in accordance with Article 55 laying down the technical requirements for which self-testing is allowed, as referred to in paragraph 1. Those delegated acts shall be adopted by [31 December 2016].

Article 47

Procedures for performance standards and assessment of technical services

In order to ensure that technical services meet the same high level of performance standards in all Member States, the Commission shall be empowered to adopt delegated acts in accordance with Article 55 concerning the standards with which the technical services have to comply and the procedure for their assessment in accordance with Article 48 and their accreditation in accordance with Article 46.

Article 48

Assessment of the skills of the technical services

1. The designating approval authority shall draw up an assessment report demonstrating that the candidate technical service has been assessed for its compliance with the requirements of this Regulation and the delegated acts adopted pursuant to this Regulation. That report may include a certificate of accreditation issued by an accreditation body.
2. The assessment on which the report referred to in paragraph 1 is based shall be conducted in accordance with the provisions laid down in a delegated act adopted pursuant to Article 55. The assessment report shall be reviewed at least every three years.
3. The assessment report shall be communicated to the Commission upon request. In such cases, where the assessment is not based on an accreditation certificate issued by a national accreditation body attesting that the technical service fulfils the requirements of this Regulation, the designating approval authority shall provide the Commission with documentary evidence which attests the technical service's competence and the arrangements in place to ensure that the technical service is monitored regularly by the designating approval authority and satisfies the requirements of this Regulation and the delegated acts adopted pursuant to this Regulation.
4. An approval authority that intends to be designated as a technical service in accordance with Article 45(2) shall document compliance through an assessment conducted by auditors independent of the activity being assessed. Such auditors may be from the same organisation provided that they are managed separately from personnel undertaking the assessed activity.
5. An accredited in-house technical service shall comply with the relevant provisions of this Article.

Article 49

Procedures for notification

1. Member States shall notify to the Commission the name, the address including electronic address, the responsible persons and the category of activities with respect

to each technical service that they have designated, as well as any subsequent modifications to those designations.

2. A technical service may conduct the activities referred to in Article 45(1) on behalf of the designating approval authority responsible for the EU type-approval only if it has been notified beforehand to the Commission in accordance with paragraph 1 of this Article.
3. The same technical service may be designated by several designating approval authorities and notified by the Member States of these designating approval authorities irrespective of the category or categories of activities it will conduct in accordance with Article 45(1).
4. The Commission shall be notified of any subsequent relevant changes to the designation.
5. Where a specific organisation or competent body carrying out an activity not included in those referred to in Article 45(1), needs to be designated in application of a delegated act, the notification shall be made in accordance with this Article.
6. The Commission shall publish on its website a list and details of the technical services notified in accordance with this Article.

Article 50

Changes to designations

1. Where a designating approval authority has ascertained or has been informed that a technical service designated by it no longer meets the requirements laid down in this Regulation, or that it is failing to fulfil its obligations, the designating approval authority shall restrict, suspend or withdraw the designation as appropriate, depending on the seriousness of the failure to meet those requirements or fulfil those obligations. The Member State that has notified this technical service shall immediately inform the Commission accordingly. The Commission shall modify the published information referred to in Article 49(6) accordingly.
2. In the event of restriction, suspension or withdrawal of the designation, or where the technical service has ceased its activity, the designating approval authority shall take appropriate steps to ensure that the files of that technical service are either processed by another technical service or kept available for the designating approval authority or for the market surveillance authorities at their request.

Article 51

Challenge to the competence of technical services

1. The Commission shall investigate all cases where it has doubts, or doubt is brought to its attention, regarding the competence of a technical service or the continued fulfilment by a technical service of the requirements and responsibilities to which it is subject.
2. The Member State of the designating approval authority shall provide the Commission, on request, with all information relating to the basis for the designation or the maintenance of the designation of the technical service concerned.
3. The Commission shall ensure that all sensitive information obtained in the course of its investigations is treated confidentially.

4. Where the Commission ascertains that a technical service does not meet or no longer meets the requirements for its designation, it shall inform the Member State of the designating approval authority accordingly, with a view to establishing, in cooperation with that Member State, the corrective measures necessary, and shall request that Member State to take those corrective measures, including the withdrawal of the designation if necessary.

Article 52

Operational obligations of technical services

1. Technical services shall carry out the categories of activities for which they have been designated on behalf of the designating approval authority and in accordance with the assessment and test procedures provided for in this Regulation and its delegated acts.

Technical services shall supervise or shall themselves carry out the tests required for approval or inspections as set out in this Regulation or in one of its delegated acts, except where alternative procedures are permitted. The technical services shall not conduct tests, assessments or inspections for which they have not been duly designated by their approval authority.

2. Technical services shall at all times:
 - (a) allow their designating approval authority to witness the technical service during the conformity assessment as appropriate; and
 - (b) without prejudice to Article 43(9) and Article 53, provide their designating approval authority with such information on their categories of activities falling under the scope of this Regulation as may be requested.
3. Where a technical service finds that requirements laid down in this Regulation have not been met by a manufacturer, it shall report this to the designating approval authority with a view to the designating approval authority requiring the manufacturer to take appropriate corrective measures and subsequently not issuing an EU type-approval certificate unless the appropriate corrective measures have been taken to the satisfaction of the approval authority.
4. Where, in the course of monitoring conformity of production following the issue of an EU type-approval certificate, a technical service acting on behalf of the designating approval authority finds that an engine no longer complies with this Regulation, it shall report this to the designating approval authority. The approval authority shall take the appropriate measures as provided for in Article 25.

Article 53

Information obligations of technical services

1. Technical services shall inform their designating approval authority of the following:
 - (a) any non-conformity encountered which might require a refusal, restriction, suspension or withdrawal of an EU type-approval certificate;
 - (b) any circumstances affecting the scope of or conditions for their designation;
 - (c) any request for information which they have received from market surveillance authorities regarding their activities.

2. On request from their designating approval authority, technical services shall provide information on the activities within the scope of their designation and on any other activity performed, including cross-border activities and subcontracting.

CHAPTER XIII

IMPLEMENTING ACTS AND DELEGATED ACTS

Article 54

Committee procedure

1. The Commission shall be assisted by the ‘Technical Committee – Motor Vehicles’ (TCMV) established in Article 40(1) of Directive 2007/46/EC of the European Parliament and of the Council. That committee is a committee within the meaning of Regulation (EU) No 182/2011.
2. Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

Article 55

Exercise of the delegation

1. The power to adopt the delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
2. The power to adopt delegated acts referred to in Article 3, Article 17(5), Article 18(2), Article 23(11), Article 24(4), Article 25(6), Article 31(5), Article 32(5), Article 40(4), Article 41(5), Article 46(4) and Article 47 shall be conferred on the Commission for a period of five years from [insert date: entry into force].
3. The delegation of power referred to in Article 3, Article 17(5), Article 18(2), Article 23(11), Article 24(4), Article 25(6), Article 31(5), Article 32(5), Article 40(4), Article 41(5), Article 46(4) and Article 47 may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the Official Journal of the European Union or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
4. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
5. A delegated act adopted pursuant to Article 3, Article 17(5), Article 18(2), Article 23(11), Article 24(4), Article 25(6), Article 31(5), Article 32(5), Article 40(4), Article 41(5), Article 46(4) and Article 47 shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be

extended by two months at the initiative of the European Parliament or of the Council.

CHAPTER XIV

FINAL PROVISIONS

Article 56

Penalties

1. Member States shall provide for penalties for infringement of this Regulation by economic operators or OEMs. They shall take all measures necessary to ensure that the penalties are implemented. The penalties provided for shall be effective, proportionate and dissuasive. Member States shall notify those provisions to the Commission by [insert date: 2 years after entry into force] and shall notify the Commission without delay of any subsequent amendment affecting them.
2. The types of infringements which are subject to a penalty shall include:
 - (a) making false declarations, notably during approval procedures, procedures leading to a recall or procedures related to exemptions;
 - (b) falsifying test results for EU type-approval or in-service conformity;
 - (c) withholding data or technical specifications which could lead to recall, refusal or withdrawal of EU type-approval;
 - (d) use of defeat strategies;
 - (e) refusal to provide access to information;
 - (f) placing on the market engines subject to approval without such approval or falsifying documents or markings with that intention;
 - (g) placing on the market transition engines and machinery in which these engines are installed in violation of the exemption provisions;
 - (h) being in violation of the engine restrictions of use set out in Article 4;
 - (i) modifying an engine so that the engine is no longer in conformity with the specifications of its type-approval;
 - (j) installing an engine in machinery for use other than the exclusive use provided for in Article 4;
 - (k) placing on the market an engine under Article 32(4) for use in an application other than that foreseen in that Article.

Article 57

Transitional provisions

1. Without prejudice to the provisions in Chapters II and III, this Regulation shall not invalidate, before the dates for placing on the market of engines referred to in Annex III, any EU type-approval.
2. Approval authorities may continue to grant type-approvals in accordance with the relevant legislation applicable on the date of entry into force of this Regulation until the mandatory dates for the EU type-approval of engines referred to in Annex III.
3. By way of derogation from this Regulation, engines which have already received an EU type-approval pursuant to the relevant legislation applicable on the date of entry into force of this Regulation, or which meet the requirements set out by the Central Commission for the Navigation of the Rhine (CCNR) and adopted as CCNR Stage II, in the framework of the Mannheim Convention for the navigation of the Rhine, may continue to be placed on the market until the dates for placing on the market of engines referred to in Annex III.

In such a case, national authorities shall not prohibit, restrict or impede the placing on the market of engines complying with the approved type.

4. Engines which were not subject to type-approval at Union level on the date of entry into force of this Regulation may continue to be placed on the market on the basis of the national rules in force, if any, until the dates for placing on the market of engines referred to in Annex III.
5. Without prejudice to Articles 5(3) and 17(2), transition engines and, where applicable, the machinery in which those transition engines are installed may continue to be placed on the market during the transition period on condition that the machine in which the transition engine is installed has a production date prior to 1 year after the start of the transition period.

For engines of the category NRE, Member States shall authorise an extension of the transition period and the 12-months period referred to in the first sub-paragraph by an additional 12 months for OEM's with a total yearly production of fewer than 50 units of non-road mobile machinery equipped with combustion engines. For the purposes of the calculation of the total yearly production referred to in this paragraph, all OEM's under the control of the same natural or legal person shall be considered to be a single OEM.

6. Subject to the provisions set out in paragraph 5, transition engines conforming to engine types or engine families whose EU type-approval is no longer valid pursuant to Article 29(2) (a) may be placed on the market, provided these transition engines were:
 - (a) covered by a valid EU type-approval at the time of their production, and had not been placed on the market before that EU type-approval expired, or
 - (b) not regulated at Union level on the date of entry into force of this Regulation.
7. Paragraph 6 shall only apply for a period of:
 - (a) 18 months from the date for placing on the market of engines set out in Annex III, in the case set out in the first subparagraph of paragraph 5;

- (b) 30 months from the date for placing on the market of engines set out in Annex III, in the case set out in the second subparagraph of paragraph 5.
8. Manufacturers shall ensure that transition engines bear a marking indicating the engine production date. This information may be affixed to or marked on the engine's statutory plate.

Article 58

Report

1. By 31 December 2021, Member States shall inform the Commission of the application of the EU type-approval procedures laid down in this Regulation.
2. On the basis of the information supplied under paragraph 1, the Commission shall present a report to the European Parliament and the Council on the application of this Regulation by 31 December 2022.

Article 59

Review

1. By 31 December 2020, the Commission shall submit a report to the European Parliament and to the Council regarding:
 - (a) the assessment of further pollutant emission reduction potential, on the basis of available technologies and cost/benefit analysis;
 - (b) the identification of potentially relevant pollutant types that do not currently fall within the scope of this Regulation.
2. By 31 December 2025, the Commission shall submit a report to the European Parliament and to the Council regarding:
 - (a) the use of the exemption clauses provided for in Article 32(3) and (4);
 - (b) the monitoring of results of the emission tests set out in Article 18 and the conclusions thereof.
3. The reports referred to in paragraphs 1 and 2 shall be based on a consultation of the relevant stakeholders and shall take into account existing related European and international standards. It shall be accompanied, where appropriate, by legislative proposals.

Article 60

Repeal

Without prejudice to paragraphs 1 to 4 of Article 57, Directive 97/68/EC is repealed with effect from 1 January 2017.

Article 61

Entry into force and application

1. This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.
2. It shall apply from 1 January 2017.

From the date referred to in paragraph 1, national authorities shall not refuse a manufacturer's request to grant EU type-approval for a new type of engine or engine family or prohibit their placing on the market where that engine or engine family complies with the requirements set out in Chapters II, III, IV and VIII.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the European Parliament
The President

For the Council
The President



EUROPEAN
COMMISSION

Brussels, 25.9.2014
COM(2014) 581 final

ANNEXES 1 to 6

ANNEXES

to the

**proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE
COUNCIL**

**on requirements relating to emission limits and type-approval for internal combustion
engines in non-road mobile machinery**

{SWD(2014) 281 final}

{SWD(2014) 282 final}

ANNEXES

ANNEX I

Definition of engine sub-categories referred to in Article 4

Table I-1: Sub-categories of engine category NRE defined in Article 4 point (1)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
NRE	CI	variable	$0 < P < 8$	NRE-v-1	Maximum net power
	CI		$8 \leq P < 19$	NRE-v-2	
	CI		$19 \leq P < 37$	NRE-v-3	
	CI		$37 \leq P < 56$	NRE-v-4	
	all		$56 \leq P < 130$	NRE-v-5	
			$130 \leq P \leq 560$	NRE-v-6	
			$P > 560$	NRE-v-7	
	CI	constant	$0 < P < 8$	NRE-c-1	Rated net power
	CI		$8 \leq P < 19$	NRE-c-2	
	CI		$19 \leq P < 37$	NRE-c-3	
	CI		$37 \leq P < 56$	NRE-c-4	
	all		$56 \leq P < 130$	NRE-c-5	
			$130 \leq P \leq 560$	NRE-c-6	
			$P > 560$	NRE-c-7	

Table I-2: Sub-categories of engine category NRG defined in Article 4 point (2)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
NRG	all	variable	$P > 560$	NRG-v-1	Maximum net power
		constant	$P > 560$	NRG-c-1	Rated net power

Table I-3: Sub-categories of engine category NRSh defined in Article 4 point (3)

Category	Ignition	Speed mode	Power	Swept volume	Sub-	Reference
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	type		range (kW)	(cm ³)	category	power
NRSh	SI	variable or constant	0<P<19	SV<50	NRSh-v-1a	Maximum net power
				SV≥50	NRSh-v-1b	

Table I-4: Sub-categories of engine category NRS defined in Article 4 point (4)

Category	Ignition type	Speed mode	Power range (kW)	Swept volume (cm ³)	Sub-category	Reference power
NRS	SI	variable, rated; or constant	0<P<19	80≤SV<225	NRS-vr-1a	Maximum net power
				SV≥225	NRS-vr-1b	
				80≤SV<225	NRS-vi-1a	
				SV≥225	NRS-vi-1b	
		variable, intermediate	19≤P<30	SV≤1000	NRS-v-2a	Maximum net power
				SV>1000	NRS-v-2b	
			30≤P<56	any	NRS-v-3	Maximum net power

For engines <19kW with SV<80cm³ in machinery other than hand-held machinery, engines of the category NRSh shall be used.

Table I-5: Sub-categories of engine category IWP defined in Article 4 point (5)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
IWP	all	variable	37≤P<75	IWP-v-1	Maximum net power
			75≤P<130	IWP-v-2	
			130≤P<300	IWP-v-3	
			300≤P<1000	IWP-v-4	
			P≥1000	IWP-v-5	
		constant	37≤P<75	IWP-c-1	Rated net power
			75≤P<130	IWP-c-2	
			130≤P<300	IWP-c-3	
			300≤P<1000	IWP-c-4	
			P≥1000	IWP-c-5	

Table I-6: Sub-categories of engine category IWA defined in Article 4 point (6)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
IWA	all	variable	$560 \leq P < 1000$	IWA-v-1	Maximum net power
			$P \geq 1000$	IWA-v-2	
		constant	$560 \leq P < 1000$	IWA-c-1	Rated net power
			$P \geq 1000$	IWA-c-2	

Table I-7: Sub-categories of engine category RLL defined in Article 4 point (7)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
RLL	all	variable	$P > 0$	RLL-v-1	Maximum net power
		constant	$P > 0$	RLL-c-1	Rated net power

Table I-8: Sub-categories of engine category RLR defined in Article 4 point (8)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
RLR	all	variable	$P > 0$	RLR-v-1	Maximum net power
		constant	$P > 0$	RLR-c-1	Rated net power

Table I-9: Sub-categories of engine category SMB defined in Article 4 point (9)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
SMB	SI	variable or constant	$P > 0$	SMB-v-1	Maximum net power

Table I-10: Sub-categories of engine category ATS defined in Article 4 point (10)

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	Reference power
ATS	SI	variable or constant	$P > 0$	ATS-v-1	Maximum net power

ANNEX II

Exhaust emission limits referred to in Article 17(2)

Table II-1: Stage V emission limits for engine category NRE defined in Article 4 point (1)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	NRE-v-1 NRE-c-1	0<P<8	CI	8,00	(HC+NOx≤7,50)		0,40 ¹⁾	-	1,10
Stage V	NRE-v-2 NRE-c-2	8≤P<19	CI	6,60	(HC+NOx≤7,50)		0,40	-	1,10
Stage V	NRE-v-3 NRE-c-3	19≤P<37	CI	5,00	(HC+NOx≤4,70)		0,015	1x10 ¹²	1,10
Stage V	NRE-v-4 NRE-c-4	37≤P<56	CI	5,00	(HC+NOx≤4,70)		0,015	1x10 ¹²	1,10
Stage V	NRE-v-5 NRE-c-5	56≤P<130	all	5,00	0,19	0,40	0,015	1x10 ¹²	1,10
Stage V	NRE-v-6 NRE-c-6	130≤P≤560	all	3,50	0,19	0,40	0,015	1x10 ¹²	1,10
Stage V	NRE-v-7 NRE-c-7	P>560	all	3,50	0,19	3,50	0,045	-	6,00

¹⁾ 0,6 for hand-startable, air-cooled direct injection engines

Table II-2: Stage V emission limits for engine category NRG defined in Article 4 point (2)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	NRG-v-1 NRG-c-1	P>560	all	3,50	0,19	0,67	0,035	-	6,00

Table II-3: Stage V emission limits for engine category NRSh defined in Article 4 point (3)

Emission stage	Engine sub-category	Power range	Engine ignition	CO	HC + NOx
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			type		
		kW		g/kWh	g/kWh
Stage V	NRSh-v-1a	0<P<19	SI	805	50
Stage V	NRSh-v-1b			603	72

Table II-4: Stage V emission limits for engine category NRS defined in Article 4 point (4)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC + NOx
		kW		g/kWh	g/kWh
Stage V	NRS-vr-1a NRS-vi-1a	0<P<19	SI	610	10
Stage V	NRS-vr-1b NRS-vi-1b			610	8
Stage V	NRS-v-2a	19≤P≤30		610	8
Stage V	NRS-v-2b NRS-v-3	19≤P<56		4,40*	2,70*

*Optionally, as alternative, any combination of values satisfying the equation $(HC+NO_x) \times CO^{0.784} \leq 8,57$ as well as the following conditions: $CO \leq 20,6$ g/kWh and $(HC+NO_x) \leq 2,7$ g/kWh

Table II-5: Stage V emission limits for engine category IWP defined in Article 4 point (5)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	IWP-v-1 IWP-c-1	37≤P<75	all	5,00	(HC+NOx≤4,70)		0,30	-	6,00
Stage V	IWP-v-2 IWP-c-2	75≤P<130	all	5,00	(HC+NOx≤5,40)		0,14	-	6,00
Stage V	IWP-v-3 IWP-c-3	130≤P<300	all	3,50	1,00	2,10	0,11	-	6,00
Stage V	IWP-v-4 IWP-c-4	300≤P<1000	all	3,50	0,19	1,20	0,02	1x10 ¹²	6,00
Stage V	IWP-v-5	P>1000	all	3,50	0,19	0,40	0,01	1x10 ¹²	6,00

	IWP-c-5								
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Table II-6: Stage V emission limits for engine category IWA defined in Article 4 point (6)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	IWA-v-1 IWA-c-1	$560 \leq P < 1000$	all	3,50	0,19	1,20	0,02	1×10^{12}	6,00
Stage V	IWA-v-2 IWA-c-2	$P \geq 1000$	all	3,50	0,19	0,40	0,01	1×10^{12}	6,00

Table II-7: Stage V emission limits for engine category RLL defined in Article 4 point (7)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	RLL-c-1 RLL-v-1	$P > 0$	all	3,50	(HC+NOx \leq 4,00)		0,025	-	6,00

Table II-8: Stage V emission limits for engine category RLR defined in Article 4 point (8)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	PN	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	#/kWh	
Stage V	RLR-c-1 RLR-v-1	$P > 0$	all	3,50	0,19	2,00	0,015	1×10^{12}	6,00

Table II-9: Stage V emission limits for engine category SMB defined in Article 4 point (9)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	NOx	HC
		kW		g/kWh	g/kWh	g/kWh
Stage V	SMB-v-1	$P > 0$	SI	275	-	75

Table II-10: Stage V emission limits for engine category ATS defined in Article 4 point (10)

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC + NOx
		kW		g/kWh	g/kWh
Stage V	ATS-v-1	P>0	SI	400	8

**Specific provisions on hydro-carbon (HC) limits
for fully and partially gaseous fuelled engines**

1. For the sub-categories where an A factor is defined, the HC limit for fully and partially gaseous fuelled engines indicated in the table is replaced by the one calculated with the following formula:

$$HC = 0,19 + (1,5 * A * GER)$$

where GER is the average gas energy ratio over the appropriate cycle. Where both a steady-state and transient test cycle applies, the GER shall be determined from the hot-start transient test cycle. Where more than one steady-state test cycle applies, the average gas energy ratio shall be determined for each cycle individually.

If the calculated limit for HC exceeds the value of $0,19 + A$ the limit for HC shall be set to $0,19 + A$.

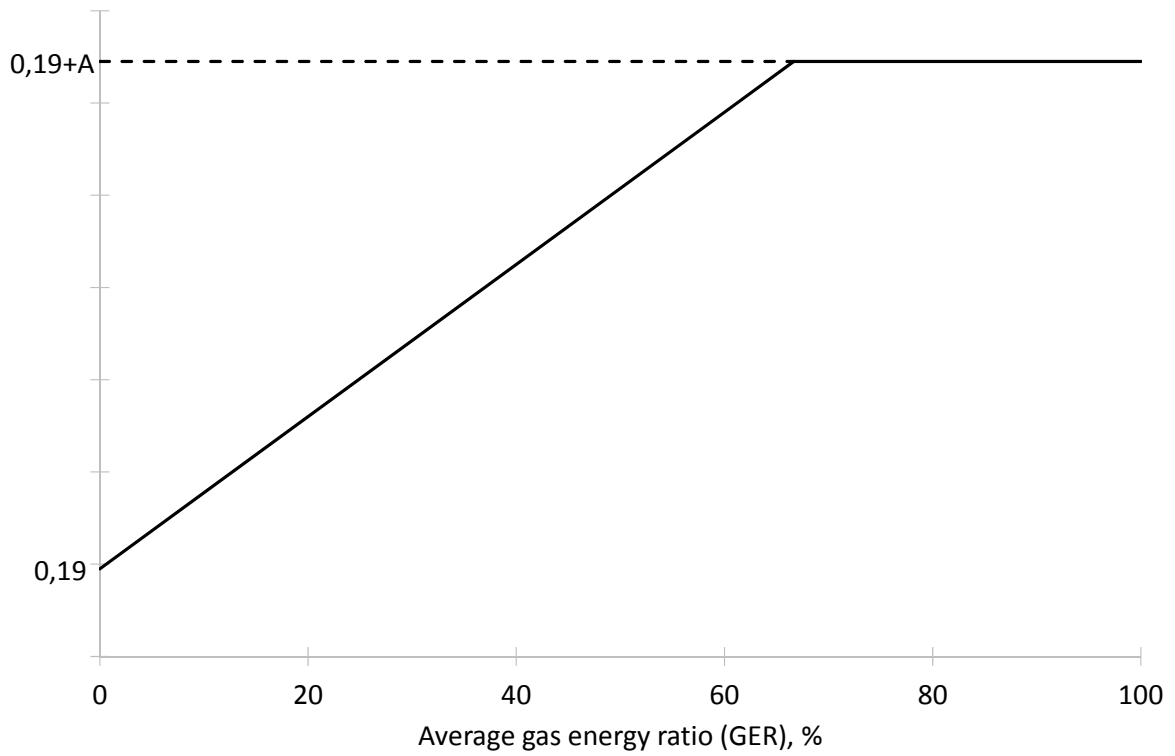


Figure 1. Schematic of HC emission limit as function of average gas energy ratio (GER)

2. For sub-categories with a combined HC and NO_x limit, the combined limit value for HC and NO_x shall be reduced by 0,19 g/kWh and apply for NO_x only.
3. For non-gaseous fuelled engines the formula does not apply.

ANNEX III

**Timetable for the application of this Regulation
in respect of EU type-approvals and placing on the market**

Table III-1: Dates of application of this Regulation for engine category NRE

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRE	CI	0<P<8	NRE-v-1 NRE-c-1	1 January 2018	1 January 2019
		8≤P<19	NRE-v-2 NRE-c-2		
	CI	19≤P<37	NRE-v-3 NRE-c-3	1 January 2018	1 January 2019
		37≤P<56	NRE-v-4 NRE-c-4		
	all	56≤P<130	NRE-v-5 NRE-c-5	1 January 2019	1 January 2020
		130≤P≤560	NRE-v-6 NRE-c-6	1 January 2018	1 January 2019
		P>560	NRE-v-7 NRE-c-7	1 January 2018	1 January 2019

Table III-2: Dates of application of this Regulation for engine category NRG

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRG	all	P>560	NRG-v-1 NRG-c-1	1 January 2018	1 January 2019

Table III-3: Dates of application of this Regulation for engine category NRSh

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	

				EU type-approval of engines	Placing on the market of engines
NRSh	SI	0<P<19	NRSh-v-1a NRSh-v-1b	1 January 2018	1 January 2019

Table III-4: Dates of application of this Regulation for engine category NRS

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
NRS	SI	0<P<56	NRS-vr-1a NRS-vi-1a NRS-vr-1b NRS-vi-1b NRS-v-2a NRS-v-2b NRS-v-3	1 January 2018	1 January 2019

Table III-5: Dates of application of this Regulation for engine category IWP

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
IWP	all	37<P<300	IWP-v-1 IWP-c-1 IWP-v-2 IWP-c-2 IWP-v-3 IWP-c-3	1 January 2018	1 January 2019
		300≤P<1000	IWP-v-4 IWP-c-4	1 January 2019	1 January 2020
		P≥1000	IWP-v-5 IWP-c-5	1 January 2020	1 January 2021

Table III-6: Dates of application of this Regulation for engine category IWA

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
IWA	all	560≤P<1000	IWA-v-1 IWA-c-1	1 January 2019	1 January 2020
		P≥1000	IWA-v-2 IWA-c-2	1 January 2020	1 January 2021

Table III-7: Dates of application of this Regulation for engine category RLL

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
RLL	all	P>0	RLL-v-1 RLL-c-1	1 January 2020	1 January 2021

Table III-8: Dates of application of this Regulation for engine category RLR

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
RLR	all	P>0	RLR-v-1 RLR-c-1	1 January 2020	1 January 2021

Table III-9: Dates of application of this Regulation for category SMB

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
SMB	SI	P>0	SMB-v-1	1 January 2018	1 January 2019

Table III-10: Dates of application of this Regulation for engine category ATS

Category	Ignition type	Power range (kW)	Sub-category	Mandatory date of application of this Regulation for	
				EU type-approval of engines	Placing on the market of engines
ATS	SI	P>0	ATS-v-1	1 January 2018	1 January 2019

ANNEX IV

Non-road steady-state test cycles (NRSC)

Table IV-1: NRSC test cycles for engines of category NRE

Category	Speed mode	Purpose		NRSC
NRE	variable	Variable speed engine having a reference power less than 19 kW	NRE-v-1 NRE-v-2	G2 or C1
		Variable speed engine having a reference power greater than or equal to 19 kW but not more than 560 kW	NRE-v-3 NRE-v-4 NRE-v-5 NRE-v-6	C1
		Variable speed engine having a reference power greater than 560 kW	NRE-v-7	C1
	constant	Constant speed engine	NRE-c-1 NRE-c-2 NRE-c-3 NRE-c-4 NRE-c-5 NRE-c-6 NRE-c-7	D2

Table IV-2: NRSC test cycles for engines of category NRG

Category	Speed mode	Purpose		NRSC
NRG	variable	Variable speed engine for generating set	NRG-v-1	C1
	constant	Constant speed engine for generating set	NRG-c-1	D2

Table IV-3: NRSC test cycles for engines of category NRSh

Category	Speed mode	Purpose		NRSC
NRSh	variable or constant	Engine having a reference power of not more than 19 kW, for use in handheld machinery	NRSh-v-1a NRSh-v-1b	G3

Table IV-4: NRSC test cycles for engines of category NRS

Category	Speed mode	Purpose		NRSC
NRS	variable, intermediate	Variable speed engine having a reference power of not more than 19 kW, intended for <u>intermediate speed</u> application	NRS-vi-1a NRS-vi-1b	G1

	variable, rated; or constant	Variable speed engine having a reference power of not more than 19 kW, intended for <u>rated speed</u> application; constant speed engine having a reference power of not more than 19 kW	NRS-vr-1a NRS-vr-1b	G2
	variable or constant	Engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2a	G2
		Engine having a reference power of greater than 19 kW, other than engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2b NRS-v-3	C2

Table IV-5: NRSC test cycles for engines of category IWP

Category	Speed mode	Purpose		NRSC
IWP	variable	Variable speed engine intended for propulsion that operates on a fixed-pitch propeller curve	IWP-v-1 IWP-v-2 IWP-v-3 IWP-v-4 IWP-v-5	E3
	constant	Constant speed engine intended for propulsion that operates with a controllable-pitch or electrically coupled propeller	IWP-c-1 IWP-c-2 IWP-c-3 IWP-c-4 IWP-c-5	E2

Table IV-6: NRSC test cycles for engines of category IWA

Category	Speed mode	Purpose		NRSC
IWA	variable	Variable speed engine having a reference power that is greater than 560 kW intended for auxiliary use on inland waterway vessels	IWA-v-1 IWA-v-2	C1
	constant	Constant speed engine having a reference power that is greater than 560 kW intended for auxiliary use on inland waterway vessels	IWA-c-1 IWA-c-2	D2

Table IV-7: NRSC test cycles for engines of category RLL

Category	Speed mode	Purpose		NRSC
RLL	variable	Variable speed engine for propulsion of locomotives	RLL-v-1	F

	constant	Constant speed engine for propulsion of locomotives	RLL-c-1	D2
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Table IV-8: NRSC test cycles for engines of category RLR

Category	Speed mode	Purpose		NRSC
RLR	variable	Variable speed engine for propulsion of railcars	RLR-v-1	C1
	constant	Constant speed engine for propulsion of railcars	RLR-c-1	D2

Table IV-9: NRSC test cycles for engines of category SMB

Category	Speed mode	Purpose		NRSC
SMB	variable or constant	Engines for propulsion of snowmobiles	SMB-v-1	H

Table IV-10: NRSC test cycle for engines of category ATS

Category	Speed mode	Purpose		NRSC
ATS	variable or constant	Engines for propulsion of ATV or SbS	ATS-v-1	G1

Non-road transient test cycles

Table IV-11: Non-road transient test cycle for engines of category NRE

Category	Speed mode	Purpose		
NRE	variable	Variable speed engine having reference power greater than or equal to 19 kW but not more than 560 kW	NRE-v-3 NRE-v-4 NRE-v-5 NRE-v-6	NRTC

Table IV-12: Non-road transient test cycle for engines of category NRS⁽¹⁾

Category	Speed mode	Purpose		
NRS	variable or constant	Engine having a reference power of greater than 19 kW, other than engine having both a reference power between 19 kW and 30 kW and a total swept volume of less than 1 litre	NRS-v-2b NRS-v-3	LSI-NRTC

⁽¹⁾ Only applicable for engines with maximum test speed ≤ 3400 rpm.

ANNEX V

Emission durability periods referred to in Article 24(1)

Table V-1: Emission durability periods (EDP) for engine category

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
NRE	CI	variable	$0 < P < 8$	NRE-v-1	3000
	CI		$8 \leq P < 19$	NRE-v-2	
	CI		$19 \leq P < 37$	NRE-v-3	5000
	CI		$37 \leq P < 56$	NRE-v-4	8000
	all		$56 \leq P < 130$	NRE-v-5	
			$130 \leq P \leq 560$	NRE-v-6	
			$P > 560$	NRE-v-7	
	CI	constant	$0 < P < 8$	NRE-c-1	3000
	CI		$8 \leq P < 19$	NRE-c-2	
	CI		$19 \leq P < 37$	NRE-c-3	
	CI		$37 \leq P < 56$	NRE-c-4	8000
	all		$56 \leq P < 130$	NRE-c-5	
			$130 \leq P \leq 560$	NRE-c-6	
			$P > 560$	NRE-c-7	

Table V-2: Emission durability period (EDP) for engine category

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
NRG	all	constant	$P > 560$	NRG-v-1	8000
		variable		NRG-c-1	

Table V-3: Emission durability period (EDP) for engine category NRSh

Category	Ignition type	Speed mode	Power range (kW)	Swept volume (cm ³)	Sub-category	EDP (hours)
NRSh	SI	variable or	$0 < P < 19$	SV < 50	NRSh-v-1a	50/125/300 ¹⁾

		constant		SV \geq 50	NRSh-v-1b	
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¹⁾ EDP hours correspond to the EDP categories Cat 1/Cat 2/Cat 3 as defined in the delegated acts.

Table V-4: Emission durability period (EDP) for engine category

Category	Ignition type	Speed mode	Power range (kW)	Swept volume (cm ³)	Sub-category	EDP (hours)
NRS	SI	variable, rated; or constant	0<P<19	80 \leq SV<225	NRS-vr-1a	125/250/500 ¹⁾
		variable, intermediate			NRS-vi-1a	
		variable, rated; or constant		SV \geq 225	NRS-vr-1b	250/500/1000 ¹⁾
		variable, intermediate			NRS-vi-1b	
		variable or constant	19 \leq P<30	SV \leq 1000	NRS-v-2a	1000
				SV>1000	NRS-v-2b	5000
			30 \leq P<56	any	NRS-v-3	5000

¹⁾ EDP hours correspond to the EDP categories Cat 1/Cat 2/Cat 3 as defined in the delegated acts.

Table V-5: Emission durability period (EDP) for engine category

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
IWP	all	variable	37 \leq P<75	IWP-v-1	10000
			75 \leq P<130	IWP -v-2	
			130 \leq P<300	IWP -v-3	
			300 \leq P<1000	IWP -v-4	
			P \geq 1000	IWP -v-5	
		constant	37 \leq P<75	IWP -c-1	10000
			75 \leq P<130	IWP -c-2	
			130 \leq P<300	IWP -c-3	
			300 \leq P<1000	IWP -c-4	
			P \geq 1000	IWP -c-5	

Table V-6: Emission durability period (EDP) for engine category IWA

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
IWA	all	variable	$560 \leq P < 1000$	IWA-v-1	10000
			$P \geq 1000$	IWA-v-2	
		constant	$560 \leq P < 1000$	IWA-c-1	
			$P \geq 1000$	IWA-c-2	

Table V-7: Emission durability period (EDP) for engine category RLL

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
RLL	all	variable	$P > 0$	RLL-v-1	10000
		constant	$P > 0$	RLL-c-1	

Table V-8: Emission durability period (EDP) for engine category RLR

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
RLR	all	variable	$P > 0$	RLR-v-1	10000
		constant	$P > 0$	RLR-c-1	

Table V-9: Emission durability period (EDP) for category SMB

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
SMB	SI	variable or constant	$P > 0$	SMB-v-1	400

Table V-10: Emission durability period (EDP) for engine category

Category	Ignition type	Speed mode	Power range (kW)	Sub-category	EDP (hours)
ATS	SI	variable or constant	$P > 0$	ATS-v-1	500/1000 ²⁾

²⁾ EDP hours correspond to the following total engine swept volumes: $< 100 \text{ cm}^3$ / $\geq 100 \text{ cm}^3$.

ANNEX VI

ATEX emission limit values referred to in Article 32(4)

Table VI-1: ATEX emission limit values for engine category NRE

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	THC	NOx	PM mass	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	
ATEX	NRE-v-1 NRE-c-1	0<P<8	CI	8	7,5		0,4	6,0
ATEX	NRE-v-2 NRE-c-2	8≤P<19	CI	6,6	7,5		0,4	6,0
ATEX	NRE-v-3 NRE-c-3	19≤P<37	CI	5,5	7,5		0,6	6,0
ATEX	NRE-v-4 NRE-c-4	37≤P<56	CI	5,0	4,7		0,4	6,0
ATEX	NRE-v-5 NRE-c-5	56≤P<130	all	5,0	4,0		0,3	6,0
ATEX	NRE-v-6 NRE-c-6	130≤P≤560	all	3,5	4,0		0,2	6,0
ATEX	NRE-v-7 NRE-c-7	P>560	all	3,5	6,4		0,2	6,0

Table VI-2: ATEX emission limit values for engine category NRG

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	HC	NOx	PM mass	A
		kW		g/kWh	g/kWh	g/kWh	g/kWh	
ATEX	NRG-c-1 NRG-v-1	P>560	all	3,5	6,4		0,2	6,0

Table VI-3: ATEX emission limit values for engine category RLL

Emission stage	Engine sub-category	Power range	Engine ignition type	CO	THC	NOx	PM mass	A
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		kW		g/kWh	g/kWh	g/kWh	g/kWh	
ATEX	RLL-v-1 RLL-c-1	P≤560	all	3,5	(HC+NOx≤4,0)		0,2	6,0
ATEX	RLL-v-1 RLL-c-1	P>560 kW	all	3,5	0,5	6,0	0,2	6,0
ATEX	RLL-v-1 RLL-c-1	P>2000 kW and Svc ¹⁾ >5 litres	all	3,5	0,4	7,4	0,2	6,0

¹⁾Swept Volume per cylinder