



EUROPEAN
COMMISSION

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COMMISSION IMPLEMENTING REGULATION (EU) .../...

of XXX

**laying down rules, procedures and testing methodologies for the application of
Regulation (EU) 2024/1257 as regards exhaust and evaporative emission type-approval
of vehicles of categories M₁ and N₁ and amending Implementing Regulation (EU)
2020/683**

(Text with EEA relevance)

This draft has not been adopted or endorsed by the European Commission. Any views expressed are the preliminary views of the Commission services and may not in any circumstances be regarded as stating an official position of the Commission.

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laying down rules, procedures and testing methodologies for the application of Regulation (EU) 2024/1257 as regards exhaust and evaporative emission type-approval of vehicles of categories M₁ and N₁ and amending Implementing Regulation (EU) 2020/683

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Regulation (EU) 2024/1257 of the European Parliament and of the Council of 24 April 2024 on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7), amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009 of the European Parliament and of the Council, Commission Regulation (EU) No 582/2011, Commission Regulation (EU) 2017/1151, Commission Regulation (EU) 2017/2400 and Commission Implementing Regulation (EU) 2022/1362¹, and in particular Articles 14(3), point (a), and 14(4), points (a), (b), (c), (e), (f), (j), (l), (m), (n), (o), (p), (q), (r), (s), (u) and (v), thereof,

Having regard to Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC², and in particular Articles 28(3), 30(3), 36(4), 37(8) and 38(3) thereof,

Whereas:

- (1) Regulation (EU) 2024/1257 requires new types of vehicles of categories M₁ and N₁ and components, systems and separate technical units intended for vehicles of categories M₁ or N₁ to comply with emission limits and new emission provisions from 29 November 2026 and for new vehicles of categories M₁ and N₁ and components, systems and separate technical units for those vehicles, from 29 November 2027, with the exception of vehicles of categories M₁ and N₁ constructed by small-volume manufacturers for which the requirements shall apply as from 1 July 2030. The specific technical provisions necessary to implement Regulation (EU) 2024/1257 should be adopted. Therefore, this Regulation aims at setting the requirements necessary for the Emission type-approval of vehicles that are to be designated as ‘Euro 7’ vehicles, ‘Euro 7G’ vehicles, ‘Euro 7ext’ vehicles or ‘Euro 7Gext’ vehicles in accordance with Articles 4 and 5 of Regulation (EU) 2024/1257.

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¹ OJ L, 2024/1257, 8.5.2024, p.1 ELI: <http://data.europa.eu/eli/reg/2024/1257/oj>.

² OJ L 151, 14.6.2018, p. 1, ELI: <http://data.europa.eu/eli/reg/2018/858/oj>.

- (2) Simplification is achieved by establishing the testing procedures, methodologies and procedures, tests and checks, in accordance with the requirements specified in Annex V to Regulation (EU) 2024/1257 and eliminating tests which are no longer relevant and replacing certification tests with declarations by the vehicle manufacturer, by referring to UN Regulations where applicable, and by ensuring a consistent set of procedures and tests for the various phases of the emission type-approval.
- (3) UN Regulations, notably UN Regulation No 154³, UN Regulation No 168⁴ and UN Regulation 83⁵ are referred to in this Regulation only in the context of emission type-approval for light-duty vehicles that is covered by Article 14(8)(a) and (b) of Regulation (EU) 2024/1257. Testing procedures, methodologies and procedures, tests and checks that are included in the above-mentioned UN Regulations and relate to M₂ and N₂ vehicles shall be adopted subsequently under Article 14(9)(a) and (b) of Regulation (EU) 2024/1257.
- (4) In order to integrate internationally harmonised technical rules into the emission type-approval system, references should be made to UN Regulation No 154 in accordance with the requirements set out in Table 1 of Annex III to Regulation (EU) 2024/1257 regarding test conditions and administrative provisions that apply to emissions type-approval under laboratory exhaust emission measurement, but also for Model Information Document, Model of Emission Type-Approval certificate and test report ensuring that emission type-approval specificities are set out. References should be made to UN Regulation No 168 in accordance with requirements set out in Table 1 of Annex III to Regulation (EU) 2024/1257 regarding test conditions and administrative provisions that apply to Emissions type-approval under Real Driving Emission (RDE), adding requirements that comply with specific provisions of Regulation (EU) 2024/1257 regarding exhaust PN₁₀ emissions. Where appropriate, reference should also be made to UN Regulation No 83 regarding the measurement of crankcase gases, the emissions at low ambient temperature and the in-service conformity methodology. Additionally, UN Regulation No 155⁶ should be referred to for cybersecurity measures and to ensure the secure transmission of data related to emissions.
- (5) In order to reflect the average expected lifetime of vehicles in the Union, the tests, methods and procedures should include specific requirements to comply with the durability requirements of vehicles, systems, components and separate technical units under Regulation (EU) 2024/1257, more particularly under Annex IV thereto.

³ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>). In the case of a UN Regulation the series of amendments indicated reflects the version that has been published in the Official Journal of the European Union. Compliance with a series of amendments adopted after the particular series indicated shall be accepted as an alternative.

⁴ UN Regulation No 168 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to real driving emissions (RDE) [2024/211] (OJ L, 2024/211, 12.1.2024, ELI: <http://data.europa.eu/eli/reg/2024/211/oj>).

⁵ UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

⁶ UN Regulation No 155 - Uniform provisions concerning the approval of vehicles with regards to cyber security and cyber security management system (OJ L, 2025/5, 10.1.2025, ELI: <http://data.europa.eu/eli/reg/2025/5/oj>).

- (6) Effective implementation is ensured by setting out roles and responsibilities of respectively manufacturers, Member States type-approval authorities and national authorities, and recognised third parties in accordance with Annex V to Regulation (EU) 2024/1257 for applicable tests and procedures. When required, templates for declaration of compliance shall be made available to manufacturers in accordance with the provisions of Annex V to Regulation (EU) 2024/1257, in particular for specific tests applying to (i) crankcase emissions (Type 3 test), (ii) durability of emission control system (Type 5 test), (iii) OBD requirements for the purposes of emission type-approval, (iv) anti-tampering, security and cybersecurity requirements, (v) regeneration, (vi) correct operation of systems using a consumable reagent and pollution control devices, (vii) CO₂ ambient temperature correction (ATCT) and (viii) geofencing technologies, where applicable.
- (7) In order to ensure that the required type-approval information is consistently presented and for effective implementation as well as increased transparency, the emission type-approval certificate numbering system should be adapted to Regulation (EU) 2024/1257 requirements for applicable tests and procedures, ensuring a harmonised presentation. Templates for type-approval certificates and templates for certificates of conformity should be adapted where necessary and Commission Implementing Regulation (EU) 2020/683⁷ should be amended accordingly.
- (8) In order to comply with the obligation provided for in Article 14(7) of Regulation (EU) 2024/1257 that for vehicle types of categories M₁ and N₁, the methods for measuring pollutant exhaust emissions and evaporative emissions are to reflect those laid down in Regulation (EU) 2017/1151, the relevant methods, requirements and procedures should be specified in accordance with that requirement, notably for the Type 1 test, Type 3 test, Type 4 test, Type 5 test, Type 6 test and OBD requirements.
- (9) The use of manipulation devices or manipulation strategies is prohibited under Regulation (EU) 2024/1257. Ensuring an effective implementation and enforcement of such prohibition is essential to safeguard the objectives of that Regulation. Specific methods, procedures, administrative procedures, reporting and documentation obligations should therefore be set out for establishing the absence of manipulation devices and manipulation strategies related to exhaust and evaporative emissions.
- (10) A robust framework for the prohibition of manipulation devices and manipulation strategies should ensure that the emissions behaviour of vehicles is not altered between compliance testing and real-world driving, and that data on sensors, fuel or electric energy consumption, electric range, and battery durability remains accurate and reliable. It is therefore appropriate to set out general and technical requirements, as well as specific documentation requirements, to implement the prohibition of manipulation devices and manipulation strategies, and to clarify the roles and responsibilities of manufacturers, type-approval authorities, market surveillance authorities, the Commission and recognised third parties.
- (11) At market surveillance stage, screening tests for the presence of manipulation devices and manipulation strategies related to exhaust and evaporative emissions should focus

⁷ Commission Implementing Regulation (EU) 2020/683 of 15 April 2020 implementing Regulation (EU) 2018/858 of the European Parliament and of the Council with regards to the administrative requirements for the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (OJ L 163, 26.5.2020, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2020/683/oj).

on identifying situations where the vehicle detects test conditions followed by a change in the emissions control strategy and emissions behaviour that is not documented at type-approval. For the effective performance of such screening tests and assessment, it is appropriate that market surveillance authorities performing such tests should use a variety of testing approaches, and be able to evaluate the results of the screening by comparing them not to the emission limits set out in Annex I to Regulation (EU) 2024/1257, but to specific thresholds based on technical considerations.

- (12) In order to ensure that the required type-approval information is consistently reflected, new examples for the Euro 7 type-approval related certificate numbering system should be introduced. For effective implementation, such as for registration purposes, the templates for the certificates of conformity should be adapted where necessary. Regulation (EU) 2020/683 should be amended accordingly.
- (13) Whenever the measures provided for in this Regulation entail the processing of personal data, that processing should be carried out in accordance with Regulations (EU) 2016/679⁸ and (EU) 2018/1725⁹ of the European Parliament and of the Council, as well as the relevant national law in accordance with those Regulations.
- (14) The measures provided for in this Regulation are in accordance with the opinion of the Technical Committee – Motor vehicles (TCMV),

HAS ADOPTED THIS REGULATION:

Article 1 ***Scope***

This Regulation applies to the emission type-approval of the motor vehicles belonging to the following vehicle categories:

- (a) M1 and N1;
- (b) N2 designated as ‘Euro 7ext’ and ‘Euro 7Gext’ in accordance with Article 5 of Regulation (EU) 2024/1257.

Article 2 ***Definitions***

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

- (1) ‘vehicle type with regard to emissions’ means a group of vehicles which:
 - (a) do not differ with respect to the criteria constituting an ‘interpolation family’ as specified in paragraph 6.3.2. of UN Regulation No 154;

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⁸ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1, ELI: <http://data.europa.eu/eli/reg/2016/679/oj>).

⁹ Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data (OJ L 295, 21.11.2018, p. 39, ELI: <http://data.europa.eu/eli/reg/2018/1725/oj>).

- (b) fall in a single CO₂ interpolation range within the meaning of paragraph 2.3.2. of Annex B6 to UN Regulation No 154 or paragraph 4.5.1. of Annex B8 to UN Regulation No 154;
- (c) do not differ with respect to any characteristics that have a non-negligible influence on tailpipe emissions, such as, but not limited to, the following:
 - types and sequence of pollution control devices (e.g. three-way catalyst, oxidation catalyst, lean NO_x trap, SCR, lean NO_x catalyst, particulate trap or combinations thereof in a single unit);
 - exhaust gas recirculation (with or without, internal/external, cooled/non-cooled, low/high/combined pressure);
- (2) ‘periodically regenerating system’ means an exhaust emissions control device (e.g. catalytic converter, particulate trap) that requires a periodic regeneration process;
- (3) ‘mono fuel vehicle’ means a vehicle that is designed to run primarily on one type of fuel;
- (4) ‘mono fuel gas vehicle’ means a mono fuel vehicle that is designed primarily for permanent running on LPG or NG/biomethane or hydrogen, but may also have a petrol system for emergency purposes or starting only, where the nominal capacity of the petrol tank does not exceed 15 litres;
- (5) ‘bi fuel vehicle’ means a vehicle with two separate fuel storage systems that is designed to run primarily on only one fuel at a time, however, the simultaneous use of both fuels is permitted in limited amount and duration;
- (6) ‘bi fuel gas vehicle’ means a bi fuel vehicle where the two fuels are petrol (petrol mode) and either LPG, NG/biomethane, or hydrogen;
- (7) ‘flex fuel vehicle’ means a vehicle with one fuel storage system that can run on different mixtures of two or more fuels;
- (8) ‘flex fuel ethanol vehicle’ means a flex fuel vehicle that can run on petrol or a mixture of petrol and ethanol up to an 85 per cent ethanol blend (E85);
- (9) ‘flex fuel biodiesel vehicle’ means a flex fuel vehicle that can run on mineral diesel or a mixture of mineral diesel and biodiesel;
- (10) ‘malfunction indicator’ or ‘MI’ means a visible or audible indicator that clearly informs the driver of the vehicle in the event of a malfunction of any emission-related component connected to the OBD system, or of the OBD system itself;
- (11) ‘third party’ means a third party complying with the requirements of Commission Implementing Regulation (EU) 2022/163¹⁰;
- (12) ‘deficiency’ means, in the context of the OBD system, that up to two separate components or systems which are monitored contain temporary or permanent operating characteristics that impair the otherwise efficient OBD monitoring of those components or systems or do not meet all of the other detailed requirements for OBD;

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¹⁰ Commission Implementing Regulation (EU) 2022/163 of 7 February 2022 laying down rules on the application of Regulation (EU) 2018/858 of the European Parliament and of the Council as regards functional requirements for market surveillance of vehicles, systems, components and separate technical units (OJ L 27, 8.2.2022, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2022/163/oj).

- (13) ‘net power’ means the power obtained on a test bench at the end of the crankshaft or its equivalent at the corresponding engine or motor speed with the auxiliaries, tested in accordance with Annex XX, and determined under reference atmospheric conditions;
- (14) ‘rated engine power’ (P_{rated}) means the maximum net power of the engine or motor in kW measured in accordance with the requirements of Annex XX;
- (15) ‘maximum 30 minutes power’ means the maximum net power of an electric drive train at DC voltage as set out in paragraph 5.3.2. of UN Regulation No 85¹¹;
- (16) ‘Portable Emissions Measurement System’ or ‘PEMS’ means a portable emissions measurement system meeting the requirements specified in Annex 4 to UN Regulation No 168¹²;
- (17) ‘permeability factor’ or ‘PF’ means the factor determined on the basis of hydrocarbon losses over a period of time and used to determine the final evaporative emissions;
- (18) ‘Base Emission Strategy’ or ‘BES’ means an emission strategy that is active throughout the speed and load operating range of the vehicle unless an Auxiliary Emission Strategy is activated;
- (19) ‘Auxiliary Emission Strategy’ or ‘AES’ means an emission strategy that becomes active and replaces or modifies a BES for a specific purpose and in response to a specific set of ambient or operating conditions and only remains operational as long as those conditions exist.

Article 3

Requirements for emission type-approval

1. In order to receive an emission type-approval under Regulation (EU) 2024/1257, the manufacturer shall demonstrate that the vehicles comply with the requirements of this Regulation when tested in accordance with the test procedures specified in Annexes III to VIII, X, XI, XIII, XIV, XVI, XX, XXI and XXII. The manufacturer shall also ensure that the reference fuels comply with the specifications set out in Annex IX.
2. Manufacturers shall ensure that the vehicles are subject to the tests specified in Figure I.2.3. of Annex I when applying the procedures in paragraph 1.

In all references to UN Regulation No 154, only the Union related requirements characterised by level 1A shall apply. References to UN Regulation No 154 “criteria emissions” shall be understood as references to “pollutant emissions” in this Regulation.

¹¹ Regulation No 85 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of internal combustion engines or electric drive trains intended for the propulsion of motor vehicles of categories M and N with regard to the measurement of net power and the maximum 30 minutes power of electric drive trains (OJ L, 323, 7.11.2014, p. 52 <http://data.europa.eu/eli/reg/2014/85/oj>).

¹² UN Regulation No 168 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to real driving emissions (RDE) [2024/211] (OJ L, 2024/211, 12.1.2024, ELI: <http://data.europa.eu/eli/reg/2024/211/oj>).

3. In order to receive an emission type-approval in accordance with Regulation (EU) 2024/1257, the manufacturer shall also perform the tests for fuel consumption and CO₂ emissions set out in Annex XXI and in Annex XII, where applicable.

The granting type-approval authority shall ensure that the type-approval test data are recorded for each Type 1 test and uploaded to the dedicated Commission server in accordance with Article 14 of Regulation (EU) 2021/392¹³.

4. Specific requirements for inlets to fuel tanks are laid down in Section 2.2 of Annex I.
5. The manufacturer shall ensure that the emissions test results comply with the applicable limit values set out in Annex I to Regulation (EU) 2024/1257 under the specified test conditions of this Regulation.

6. Mono-fuel gas vehicles shall be tested in the Type 1 test for variation in the composition of LPG or NG/biomethane, as set out in Annex B6 to UN Regulation No 154 for pollutant emissions, with the fuel used for the measurement of the net power in accordance with Annex XX to this Regulation.

Bi-fuel gas vehicles shall be tested with petrol and either LPG or NG/biomethane. The tests on LPG or NG/biomethane shall be performed for variation in the composition of LPG or NG/biomethane, as set out in Annex B6 to UN Regulation No 154 for pollutant emissions, and with the fuel used for the measurement of the net power in accordance with Annex XX to this Regulation.

7. The manufacturer shall ensure that for the Type 3 test set out in Annex V, the engine's ventilation system does not permit the emission of any crankcase gases into the atmosphere.

8. The Type 6 test measuring emissions at low temperatures set out in Annex VIII shall not apply to diesel vehicles.

However, the manufacturer shall provide the approval authority with information on the operating strategy of the exhaust gas recirculation system ('EGR'), including its functioning at low temperatures. Such information shall also include a description of any effects on emissions.

At the request of the Commission, the approval authority shall provide information on the performance of NO_x after-treatment devices and EGR system at low temperatures.

9. For a vehicle that is type-approved in accordance with Regulation (EU) 2024/1257, the manufacturer shall ensure that, throughout the lifetime of a vehicle as specified in Annex IV to Regulation (EU) 2024/1257, the final RDE results of that vehicle as determined in accordance with UN Regulation No 168 as amended by Annex III and emitted at an RDE test performed in accordance with that Annex, do not exceed the relevant values set out in Annex I to Regulation (EU) 2024/1257.

10. The requirements of Annex III shall not apply to emission type-approval granted to ultra-small-volume manufacturers under Regulation (EU) 2024/1257.

¹³ Commission Implementing Regulation (EU) 2021/392 of 4 March 2021 on the monitoring and reporting of data relating to CO₂ emissions from passenger cars and light commercial vehicles pursuant to Regulation (EU) 2019/631 of the European Parliament and of the Council (OJ L 77, 5.3.2021, p. 8, ELI: http://data.europa.eu/eli/reg_impl/2021/392/oj).

Article 4
Requirements for emission type-approval regarding the OBD system

The manufacturer shall ensure that the OBD system fulfils the requirements set out in Annex XI.

Article 5
Requirements for emission type-approval
regarding on-board fuel and electric energy consumption monitoring devices

1. The manufacturer shall ensure that the following vehicles of categories M₁ and N₁ are equipped with a device for determining, storing and making available data on the quantity of fuel and electric energy used for the operation of the vehicle:
 - (a) pure ICE and Not-Off-Vehicle Charging Hybrid Electric vehicles (NOVC-HEVs) powered exclusively by mineral diesel, biodiesel, petrol, ethanol or any combination of these fuels;
 - (b) Off-Vehicle Charging Hybrid Electric Vehicles (OVC-HEVs) powered by electricity and any of the fuels referred to in point (a).
2. On-board fuel and electric energy consumption monitoring devices referred to in Article 4(6), point (c) of Regulation (EU) 2024/1257 shall comply with the requirements laid down in Annex XXII to this Regulation.

Article 6
Application for emission type-approval of a vehicle

1. The manufacturer shall submit to the approval authority an application for emission type-approval of a vehicle under Regulation (EU) 2024/1257.
2. The application referred to in paragraph 1 shall be drawn up in accordance with the model of the information document set out in Appendix 3 to Annex I.
3. In addition, the manufacturer shall submit to the granting type-approval authority the following information:
 - (a) in the case of vehicles equipped with positive-ignition engines, a declaration by the manufacturer of the minimum percentage of misfires out of a total number of firing events that would either result in emissions exceeding the OBD thresholds laid out in Table 4A of paragraph 6.8.2. of UN Regulation No 154, if that percentage had been present from the start of a type 1 test as chosen for the demonstration in accordance with Annex C5 to UN Regulation No 154, or could lead to an exhaust catalyst or catalysts overheating prior to causing irreversible damage;
 - (b) a description of the malfunction indicator used by the OBD system to signal the presence of a fault to a driver of the vehicle;
 - (c) a declaration by the manufacturer that the OBD system complies with the OBD requirements laid down in Annex XI;
 - (d) a description of the measures taken to prevent tampering with and modification of the emission control systems, complying with Annex XIV and including the emission control computer and odometer including the recording of lifetime values for the purposes of the requirements of Annexes XI and XVI;

- (e) if applicable, the particulars of the vehicle family as referred to in paragraph 6.8.1. of UN Regulation No 154;
 - (f) where appropriate, copies of other type-approvals with the relevant data to enable extension of approvals;
- 4. For the purposes of paragraph 3, point (d), the measures taken to prevent tampering with and modification of the emission control computer shall include the facility for updating using a manufacturer-approved programme or calibration.
 - 5. For the tests specified in Figure I.2.3 of Annex I, the manufacturer shall submit to the technical service responsible for the emission type-approval tests a vehicle representative of the type to be approved.
 - 6. The application for emission type-approval of mono fuel, bi-fuel and flex- fuel vehicles shall comply with the additional requirements laid down in sections 1.1 and 1.2 of Annex I.
 - 7. Changes to the make of a system, component or separate technical unit that occur after a type-approval shall not automatically invalidate the type-approval, unless its original characteristics or technical parameters are changed in such a way that the functionality of the engine or pollution control system and the resulting emissions are affected.
 - 8. The manufacturer shall provide the granting type-approval authority a package on testing transparency in the format specified in Table A4/2 of paragraph 5.9. and in Tables 1 and 2 of Appendix 5 of Annex 4 to UN Regulation No 83 as amended by Annex II to this Regulation.
 - 9. The manufacturer shall upload all the in-service conformity related data required under Annex 4 to UN Regulation No.83 and Annex II to this Regulation into the electronic platform for ISC for vehicles covered by the emission type-approval.

Article 7

Administrative provisions for emission type-approval of a vehicle

- 1. Manufacturers and the granting type-approval authorities shall use the templates and models set out in Annexes I, V, VII, XI, XIV, XVI, XXI to this Regulation for demonstrating compliance with the emission type-approval requirements laid down in Articles 4 and 7 of Regulation (EU) 2024/1257 on testing.
- 2. If the requirements in Articles 4, 5, 6, 8, 9 and 10 of this Regulation are met, the approval authority shall grant an emission type-approval and issue an emission type-approval number in accordance with the numbering system set out in Annex IV to Implementing Regulation (EU) 2020/683. However, Section 3 of the emission type-approval number referred to in point 2.3. of Annex IV to Regulation (EU) 2020/683 shall be drawn up in accordance with Appendix 6 to Annex I of this Regulation.

An approval authority shall not assign the same number to another vehicle type.

- 3. By way of derogation from paragraph 2, at the request of the manufacturer, a vehicle with an OBD system may be accepted for emission type-approval, even though the system contains one or more deficiencies such that the specific requirements of Annex XI are not fully met, provided that the specific administrative provisions set out in Section 3 of that Annex are complied with.

The approval authority shall notify the decision to grant such a type-approval to all type-approval authorities in the other Member States in accordance with Article 27 of Regulation (EU) 2018/858.

4. When granting an emission type-approval under Regulation (EU) 2024/1257, the approval authority shall issue an emission type-approval certificate using the model set out in Appendix 4 to Annex I to this Regulation.

Article 8

Amendments to emission type-approvals

Articles 27, 33 and 34 of Regulation 2018/858 shall apply to any extensions to the emission type-approvals granted in accordance with Regulation (EU) 2024/1257.

At the manufacturer's request the provisions for extensions to emission type-approvals specified in Section 3 of Annex I shall apply without the need for additional testing only to vehicles of the same type.

Article 9

Conformity of Production

1. The provisions laid down in Section 4 of Annex I to this Regulation and the relevant statistical method in Appendix 2 of UN Regulation No 154 shall apply, in addition to measures to ensure the conformity of production that shall be taken by the manufacturer in accordance with article 31 of Regulation (EU) 2018/858.
2. Conformity of production shall be checked on the basis of the description in the type-approval certificate set out in Appendix 4 to Annex I.

Article 10

In-Service Conformity

1. Measures to ensure in-service conformity of vehicles type-approved under Regulation (EU) 2024/1257 shall be taken in accordance with the conformity of production arrangements as laid down in Article 31 of Regulation (EU) 2018/858, Annex IV to Regulation (EU) 2018/858 and Annex II to this Regulation.
2. The in-service conformity checks shall verify that tailpipe and evaporative emissions are effectively limited during the main and additional lifetime of vehicles under normal conditions of use.
3. In-service conformity shall be checked on properly maintained and used vehicles, in accordance with Appendix 1 of Annex 4 to UN Regulation No 83, between 15 000 km or 6 months whichever occurs later and 200 000 km or 10 years whichever occurs sooner. In service conformity for evaporative emissions shall be checked on properly maintained and used vehicles, in accordance with Appendix 1 of Annex 4 to UN Regulation No 83, between 30 000 km or 12 months whichever occurs later and 200 000 km or 10 years whichever occurs sooner.

The requirements for in-service conformity checks are applicable until 10 years after the last Certificate of Conformity or individual approval certificate is issued for vehicles of that in-service conformity family, as defined in paragraph 3 of Annex 4 to UN Regulation No 83.

4. In-service conformity checks shall not be mandatory if the annual sales of the in-service conformity family are less than 5 000 vehicles in the Union for the previous calendar year. For such in-service conformity families, the manufacturer shall provide the approval authority with a report of any emissions related warranty and relevant repair as set out in paragraph 4 of Annex 4 to UN Regulation No 83. Such in-service conformity families may still be selected to be tested in accordance with Annex II to this Regulation.
5. The manufacturer and the granting type-approval authority shall perform in-service conformity checks in accordance with Annex II. Other type-approval authorities, technical services, the Commission and third parties may perform parts of the in-service conformity checks in accordance with Annex II to this Regulation. Such checks shall be performed in accordance with Regulation (EU) 2022/163¹⁴ and Annex II to this Regulation.
6. The granting type-approval authority shall take the decision on whether a family failed the provisions of in-service conformity, following a compliance assessment in accordance with paragraph 6 of Annex 4 to UN Regulation No. 83 and approve the plan of remedial measures presented by the manufacturer in accordance with paragraph 7 of Annex 4 to UN Regulation No. 83.
7. If a type-approval authority, technical service, the Commission or a third party has established that an in-service conformity family fails the in-service conformity check, it shall notify without delay the granting type-approval authority, in accordance with Article 54(2) of Regulation (EU) 2018/858.

Following that notification and subject to the application of Article 54(5) of Regulation (EU) 2018/858, the granting type-approval authority shall inform the manufacturer that an in-service conformity family failed the in-service conformity checks. The procedures laid out in paragraphs 6 and 7 of Annex 4 to UN Regulation 83, as amended by Annex II to this Regulation, shall be followed by the manufacturer and the granting type-approval authority and the manufacturer shall establish a plan of remedial measures and submit it to the granting type approval authority.

If the granting type-approval authority establishes that no agreement can be reached with a type-approval authority that has established that an in-service conformity family fails the in-service conformity check, the procedure pursuant to Article 54(5) of Regulation (EU) 2018/858 shall be initiated.

8. In addition to paragraphs 1 to 7, the following shall apply to vehicles type-approved in accordance with Annex II:
 - (a) vehicles submitted to multi-stage type-approval, as defined in Article 3(8) of Regulation EU 2018/858, shall be checked for in-service conformity in accordance with the provisions for multistage approval set out in point 3.11 of Annex II to this Regulation;
 - (b) hearses as specified in Appendix 1 of Part III of Annex II to Regulation (EU) 2018/858, armoured vehicles as specified in Appendix 2 of Part III of Annex II

¹⁴ Commission Implementing Regulation (EU) 2022/163 of 7 February 2022 laying down rules on the application of Regulation (EU) 2018/858 of the European Parliament and of the Council as regards functional requirements for market surveillance of vehicles, systems, components and separate technical units (OJ L 27, 8.2.2022, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2022/163/oj).

to Regulation EU 2018/858 and wheelchair accessible vehicles as specified in Appendix 3 of Part III of Annex II to Regulation EU 2018/858 shall not be subject to the provisions of this Article. All other special purpose vehicles as specified in Appendix 4 of Part III of Annex II to Regulation (EU) 2018/858, shall be checked for in-service conformity in accordance with the rules for multistage type-approvals set out in Annex II to this Regulation.

Article 11 *Pollution control devices*

1. The manufacturer shall ensure that replacement pollution control devices intended to be fitted to emission type-approved vehicles covered by the scope of Regulation (EU) 2024/1257 are emission type-approved as separate technical units in accordance with Article 13 and Annex XIII to this Regulation.

The requirements for pollution control devices laid down in this Article shall be deemed to be met if the replacement pollution control devices have been approved according to UN Regulation No 103¹⁵.
2. Original equipment replacement pollution control devices, which fall within the type covered by point 2.3 of the Addendum to Annex A2 of UN Regulation No 154 and are intended for fitment to a vehicle to which the relevant type-approval document refers, do not need to comply with Annex XIII to this Regulation if they fulfil the requirements of points 2.1 and 2.2 of Annex XIII to this Regulation.
3. The manufacturer shall ensure that the original pollution control device carries identification markings.
4. The identification markings referred to in paragraph 3 shall comprise the following:
 - (a) the vehicle or engine manufacturer's name or trade mark;
 - (b) the make and identifying part number of the original pollution control device as recorded in the information referred to in point 3.2.12.2 of Annex A1 to UN Regulation No 154.

Article 12 *Application for emission type-approval* *of a type of replacement control device as a separate technical unit*

1. The manufacturer shall submit to the approval authority an application for emission type-approval of a type of replacement pollution control device as a separate technical unit.

The application shall be drawn up in accordance with the model of the information document set out in Appendix 1 to Annex XIII.
2. In addition to the requirements laid down in paragraph 1, the manufacturer shall submit to the technical service responsible for the emission type-approval test all of the following:

¹⁵ UN Regulation No 103 - Uniform provisions concerning the approval of replacement pollution control devices for power-driven vehicles [2017/1446] (OJ L 207, 10.8.2017, p. 30, ELI: <http://data.europa.eu/eli/reg/2017/1446/oj>).

- (a) a vehicle or vehicles of a type that is approved in accordance with Regulation (EU) 2024/1257 equipped with a new original equipment pollution control device;
 - (b) one sample of the type of the replacement pollution control device;
 - (c) an additional sample of the type of the replacement pollution control device, in the case of a replacement pollution control device intended to be fitted to a vehicle equipped with an OBD system.
- 3. For the purposes of paragraph 2, point (a), the test vehicles shall be selected by the applicant with the agreement of the technical service.
- 4. The test vehicles shall comply with the requirements set out in Section 2.3. of Annex B6 to UN Regulation No 154.
- 5. The test vehicles shall meet all of the following requirements:
 - (a) they shall have no emission control system defects;
 - (b) any excessively worn out or malfunctioning emission-related original parts shall be repaired or replaced;
 - (c) they shall be tuned properly and set to manufacturer's specification prior to emission testing.
- 6. For the purposes of paragraph 2, points (b) and (c), the sample shall be clearly and indelibly marked with the applicant's trade name or mark and its commercial designation.
- 7. For the purposes of paragraph 2, point (c), the sample shall have been deteriorated as defined in Article 3, point (20).

Article 13

Administrative provisions for emission type-approval of replacement pollution control device as a separate technical unit

- 1. If the requirements laid down in Annex XIII to this Regulation are met, the type-approval authority shall grant an emission type-approval for replacement pollution control devices as separate technical unit and issue an emission type-approval number in accordance with the numbering system set out in Annex IV to Regulation (EU) 2020/683.

The approval authority shall not assign the same number to another replacement pollution control device type.

The same type-approval number may cover the use of that replacement pollution control device type on a number of different vehicle types.
- 2. For the purposes of paragraph 1, the approval authority shall issue an emission type-approval certificate established in accordance with the model set out in Appendix 2 to Annex XIII.
- 3. If the applicant for emission type-approval is able to demonstrate to the approval authority or technical service that the replacement pollution control device is of a type indicated in Section 2.3 of the Addendum to Annex A2 of UN Regulation No 154, the granting of a type-approval shall not depend on verification of compliance with the requirements specified in Section 4 of Annex XIII to this Regulation.

Article 14
Manipulation devices and manipulation strategies

1. In order to receive an emission type-approval and comply with Article 4 of Regulation (EU) 2024/1257 and this Regulation, the manufacturer shall comply with Annex IV to this Regulation on tests, methods and procedures to establish the absence of manipulation devices and manipulation strategies.
2. The manufacturer shall produce all relevant documentation to technically justify the absence of manipulation devices and manipulation strategies under Article 4(5) of Regulation (EU) 2024/1257 in accordance with the specifications set out in Annex IV to this Regulation.
3. The tests, methods and procedures under paragraph 1 include the roles and responsibilities assigned to vehicle manufacturers, type-approval authorities, market surveillance authorities and other actors that shall ensure the absence of manipulation devices and manipulation strategies and are specified in Annex IV.

Article 15
Gear Shift Indicator

The manufacturer shall ensure that vehicles comply with specific requirements related to emission type-approval in accordance with Annex X.

Article 16
Anti-tampering, security and cybersecurity

The manufacturer shall ensure that vehicles comply with specific requirements related to emission type-approval in accordance with Annex XIV.

Article 17
Specific administrative provisions for emission type-approval

1. Emission type-approval shall be granted under Regulation (EU) 2024/1257 only if the requirements of implementing Regulation (EU) 2025/YY [*Publication Office: Insert reference to the Second Implementing Act*] are also complied with.
2. Emission type-approval for vehicles constructed and placed on the market by small-volume manufacturers and ultra-small-volume manufacturers as provided for in Article 8 of Regulation (EU) 2024/1257 shall be granted in accordance with Articles 4 and 5 of Regulation (EC) No 715/2007 and Implementing Regulation (EU) 2017/1151.
3. For vehicles type-approved in accordance with this Regulation that shall be designated as ‘Euro 7- TEMP’ vehicles, the requirements and dates of Table 1 of Appendix 6 of Annex I to this Regulation, shall apply.
4. For vehicle types with an existing valid type-approval issued in accordance with emission level ‘Euro 6e’ under the provisions of Regulation (EC) No 715/2007 that comply with the applicable dates of Appendix 6 of Annex I to Regulation (EU) 2017/1151 and for which a manufacturer requests an emission type-approval in order to designate new vehicles to be compliant to emission level ‘Euro 7- TEMP’, as specified in Table 1 of Appendix 6 of Annex I to this Regulation, new type-approval testing shall not be required if the manufacturer declares to the type-approval authority that compliance with the requirements of this Regulation is ensured.

Requirements not related to the testing of the vehicle, including required declarations and data requirements, shall apply.

Article 18

Amendments to Implementing Regulation (EU) 2020/683

Annexes I, IV and VII to Implementing Regulation (EU) 2020/683 are amended in accordance with Annex XVIII to this Regulation.

Article 19

Entry into force

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

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

Done at Brussels,

For the Commission
The President
Ursula von der Leyen



Brussels, XXX
[...] (2025) XXX draft

ANNEXES 1 to 3

ANNEXES

to the

Commission Implementing Regulation

**laying down rules, procedures and testing methodologies for the application of
Regulation (EU) 2024/1257 as regards exhaust and evaporative emission type-approval
of vehicles of categories M₁ and N₁**

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	and/or electric energy
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ANNEX I

ADMINISTRATIVE PROVISIONS FOR EMISSION TYPE-APPROVAL

1. Additional requirements for granting of emission type-approval
 - 1.1. Additional requirements for mono fuel gas vehicles, and bi-fuel gas vehicles.
 - 1.1.1. The additional requirements for granting of type-approval for monofuel gas vehicles, and bi-fuel gas vehicles shall be those set out in paragraph 5.9. of UN Regulation No 154¹. The reference to the information document in paragraph 5.9.1. of UN Regulation No 154 shall be understood as being reference to Appendix 3 of Annex I of this Regulation.
 - 1.2. Additional requirements for flex fuel vehicles

The additional requirements for granting of type-approval for flex fuel vehicles shall be those set out in paragraph 5.8. of UN Regulation No 154.
2. ADDITIONAL TECHNICAL REQUIREMENTS AND TESTS
 - 2.1. Inlets to fuel tanks
 - 2.1.1. The requirements for inlets to fuel tanks shall be those specified in paragraphs 6.1.5. and 6.1.6. of UN Regulation 154.
 - 2.2. Application of tests
 - 2.2.1. Figure I.2.3 illustrates the application of the tests for emission type-approval of a vehicle. The specific test procedures are described in Annexes II, III, IV, V, VI, VII, VIII, X, XI, XIV, XVI, XX, XXI and XXII.

¹

UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>). In the case of a UN Regulation the series of amendments indicated reflects the version that has been published in the Official Journal of the European Union. Compliance with a series of amendments adopted after the particular series indicated shall be accepted as an alternative.

Figure 1.2.3
Application of test and/or declaration requirements for type-approval and extensions

Vehicle category	Vehicles with positive ignition engines including hybrids								Vehicles with compression ignition engines including hybrids		Pure electric vehicles	Hydrogen fuel cell vehicles
	Mono fuel				Bi-fuel ⁽³⁾			Flex-fuel ⁽³⁾	Mono fuel			
Reference fuel	Petrol	LPG	NG/ Biome- thane	Hydro- gen (ICE)	Petrol	Petrol	Petrol	Petrol	Diesel	Petrol	—	Hydrogen (Fuel Cell)
					LPG	NG/Biome- thane	Hydrogen (ICE) ⁽⁴⁾	Ethanol (E85)				
Type 1 test ⁽⁷⁾	Yes	Yes ⁽⁵⁾	Yes ⁽⁵⁾	Yes ⁽⁴⁾	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	Yes	—	—
ATCT test ⁽¹⁾ (at 14 °C)	Yes	Yes	Yes	Yes ⁽⁴⁾	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	Yes	—	—
RDE test, gaseous pollutants	Yes	Yes	Yes	Yes ⁽⁴⁾	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes (both fuels)	Yes	Yes	—	—
RDE test, PN	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	Yes	Yes	—	—
Vehicle category	Vehicles with positive ignition engines including hybrids								Vehicles with compression ignition engines including hybrids		Pure electric vehicles	Hydrogen fuel cell vehicles
	Mono fuel				Bi-fuel ⁽³⁾			Flex-fuel ⁽³⁾	Mono fuel			

Crankcase emissions ⁽¹⁾ (Type 3 test)	Yes	Yes	Yes	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	—	—	—	—
Evaporative emissions (Type 4 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	—	Yes	—	—
Durability ⁽¹⁾ (Type 5 test)	Yes	Yes	Yes	Yes	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes	Yes	—	—
Low temperature emissions (Type 6 test)	Yes	—	—	—	Yes (petrol only)	Yes (petrol only)	Yes (petrol only)	Yes (both fuels)	—	—	—	—
In-service conformity	Yes	Yes	Yes	Yes	Yes (as at type-approval)	Yes (as at type-approval)	Yes (as at type-approval)	Yes (as at type-approval)	Yes	Yes	—	—
OBD ⁽¹⁾	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—
Engine power	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CO ₂ emissions, fuel consumption, electric energy consumption and electric range	Yes	Yes	Yes	Yes ⁽²⁾	Yes (both fuels)	Yes (both fuels)	Yes (petrol), Yes ⁽²⁾ (hydrogen)	Yes (both fuels)	Yes	Yes	Yes	Yes ⁽⁶⁾
Vehicle category	Vehicles with positive ignition engines including hybrids ⁽¹⁾ ⁽²⁾								Vehicles with compression ignition engines including hybrids	Pure electric vehicles	Hydrogen fuel cell vehicles	

	Mono fuel				Bi-fuel ⁽²⁾			Flex-fuel ⁽³⁾	Mono fuel			
OBFCM	Yes	—	—	—	—	—	—	Yes (both fuels)	Yes	Yes	—	—

- (1) Declaration of compliance by the vehicle manufacturer at type-approval.
- (2) Only fuel consumption shall be determined when the vehicle is running on hydrogen.
- (3) When a bi-fuel vehicle is combined with a flex fuel vehicle, both test requirements are applicable.
- (4) Only NO_x emissions shall be determined when the vehicle is running on hydrogen.
- (5) Particulate mass and particle number limits and respective measurement procedures shall not apply.
- (6) CO₂ emissions do not need to be measured.
- (7) For applicability of measured components to fuels and vehicle technology and therefore measurement procedures, see the emission limits as defined in Table 1 of Annex I to Regulation (EU) 2024/1257.

3. Extensions to EMISSION type-approvals
 - 3.1. Extensions for tailpipe emissions (type 1 and OBFCM)
 - 3.1.1. The type-approval shall be extended to vehicles if they conform to the requirements of paragraph 7.4. of UN Regulation No 154. The pollutant emissions shall respect the limits set out in Table 1 of Annex I to Regulation (EU) 2024/1257.
 - 3.2. Extensions for evaporative emissions (type 4 test)
 - 3.2.1. For tests performed in accordance with Annex VI the type-approval shall be extended to vehicles belonging to an approved evaporative emission family as defined in paragraph 6.6.3. of UN Regulation 154.
 - 3.3. Extensions for low temperature test (type 6 test)
 - 3.3.1. The type-approval shall be extended to vehicles if they conform to the requirements of paragraph 7.2. of UN Regulation No 83².
4. CONFORMITY OF PRODUCTION
 - 4.1. Introduction
 - 4.1.1. Every vehicle produced under a type-approval according to this Regulation shall be so manufactured as to conform to the type- approval requirements of this Regulation. The manufacturer shall implement adequate arrangements and documented control plans and carry-out at specified intervals as given in this regulation the necessary emission and OBFCM tests to verify continued conformity with the approved type. The approval authority shall verify and agree with these arrangements and control plans of the manufacturer and perform audits and conduct emission and OBFCM tests at specific intervals, as given in this regulation, at the premises of the manufacturer, including production and test facilities as part of the product conformity and continued verification arrangements as described in Annex IV of Regulation (EU) 2018/858.
 - 4.1.2. The manufacturer shall check the conformity of production by testing the emissions of pollutants (given in Table 1 of Annex I to Regulation (EU) 2024/1257), the emission of CO₂ (along with the measurement of electric energy consumption and, where applicable, the monitoring of the OBFCM device accuracy), the crankcase emissions and evaporative emissions in accordance with the test procedures described in Annexes V, VI, XXI and XXII. The verification shall therefore include the tests of types 1, 3, 4 and the tests for OBFCM, as described in section 2.3.

The approval authority shall keep record for a period of at least 5 years of all the documentation related to the conformity of production test results and shall make it available to the Commission upon request.

The specific procedures for conformity of production are set out in paragraphs 8 and 9 and Appendixes 1 to 5 of UN Regulation No 154.

The calculation of additional values required for checking the Conformity of Production of electric energy consumption of PEVs and OVC-HEVs is set out in Appendix 8 of Annex B8 to UN Regulation 154.

² UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

- 4.1.3. In case of non-conformity Article 51 of Regulation (EU) 2018/858 shall apply.
- 4.2. Vehicles fitted with eco-innovations
 - 4.2.1. In the case of a vehicle type with regard to emissions fitted with one or more eco-innovations, within the meaning of Article 11 of Regulation (EU) 2019/631 ⁽³⁾ for M₁ or for N₁ vehicles, the conformity of production shall be demonstrated with respect to the eco-innovations, by checking the presence of the correct eco-innovation(s) in question.
- 4.3. Checking the conformity of the vehicle for a Type 3 test

If a verification of the Type 3 test is to be carried out, it shall be conducted in accordance with the following requirements:

 - 4.3.1. When the approval authority determines that the quality of production seems unsatisfactory, a vehicle shall be randomly taken from the family and subjected to the tests described in Annex V.
 - 4.3.2. The production shall be deemed to conform if this vehicle meets the requirements of the tests described in Annex V.
 - 4.3.3. If the vehicle tested does not satisfy the requirements of the tests described in Annex V, a further random sample of four vehicles shall be taken from the same family and subjected to the tests described in Annex V. The tests may be carried out on vehicles which have completed a maximum of 15 000 km with no modifications.
 - 4.3.4. The production shall be deemed to conform if at least three vehicles meet the requirements of the tests described in Annex V.

³ Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (OJ L 111, 25.4.2019, p. 13).

Appendix 1

(Reserved)

Appendix 2

(Reserved)

Appendix 3

MODEL

Information document No ...

RELATING TO THE EMISSION TYPE-APPROVAL OF A VEHICLE

The information laid down in Annex A1 to UN Regulation No. 154, where applicable, shall be supplied in triplicate and include a list of contents. Any drawings shall be supplied in appropriate scale and in sufficient detail on size A4 or on a folder of A4 format. Photographs, if any, shall show sufficient detail.

Additionally, the information in the following sections, where applicable, shall be supplied.

- 0.2.2.1. Allowed Parameter Values for multistage type-approval to use the base vehicle emission, consumption and/or range values (insert range if applicable):
 - Final Vehicle actual mass (in kg): ...
 - Final Vehicle technically permissible maximum laden mass (in kg): ...
 - Frontal area for final vehicle (in cm²): ... Rolling resistance (kg/t): ...
 - Cross-sectional area of air entrance of the front grille (in cm²): ...
- 0.2.3.3. PEMS family: ...
- 0.5. Name and address of the manufacturer
- 3.2.15.1. Type-approval number according to Regulation (EC) No 661/2009 ⁽²⁾ or Regulation (EU) 2019/2144 ⁽³⁾: ...
- 3.2.16.1. Type-approval number according to Regulation (EC) No 661/2009 or Regulation (EU) 2019/2144: ...
- 3.2.18.1. EC type-approval number in accordance with Regulation (EC) No 79/2009 ⁽⁴⁾ or Regulation (EU) 2019/2144: ...
- 3.2.19. H₂NG fuelling system: yes/no ⁽¹⁾
- 3.2.19.1. Percentage of hydrogen in the fuel (the maximum specified by the manufacturer): ...
- 3.2.19.2. Number of the type-approval certificate issued in accordance with UN Regulation No 110 ⁽⁵⁾: ...
- 3.2.19.3. Electronic engine management control unit for H₂NG fuelling
 - 3.2.19.3.1. Make(s): ...
 - 3.2.19.3.2. Type(s): ...
 - 3.2.19.3.3. Emission-related adjustment possibilities: ...
- 3.2.19.4. Further documentation
 - 3.2.19.4.2. System lay-out (electrical connections, vacuum connections compensation hoses, etc.): ...
 - 3.2.19.4.3. Drawing of the symbol: ...
- 3.5. Manufacturer's declared values for determination of CO₂ emissions/fuel consumption/electric consumption/electric range and details of eco-innovations (where applicable) ⁽⁶⁾
 - 3.5.8. Vehicle fitted with an eco-innovation within the meaning of Article 11 of Regulation (EU) No 2019/631 ⁽⁷⁾ for M₁ or N₁ vehicles: yes/no ⁽¹⁾
 - 3.5.8.1. Type/Variant/Version of the baseline vehicle as referred to in Article 4 of Regulation (EU) 2023/2767 ⁽⁸⁾ (if applicable): ...
 - 3.5.8.2. Existence of interactions between different eco-innovations: yes/no ⁽¹⁾

3.5.8.3. Emissions data related to the use of eco-innovations (repeat the table for each reference fuel tested) ⁽⁹⁾

Decision approving the eco-innovation ⁽¹⁰⁾	Code of the eco-innovation ⁽¹¹⁾	1. CO ₂ emissions of the baseline vehicle (g/km)	2. CO ₂ emissions of the eco-innovation vehicle (g/km)	3. CO ₂ emissions of the baseline vehicle under type 1 test-cycle ⁽¹²⁾	4. CO ₂ emissions of the eco-innovation vehicle under type 1 test-cycle	5. Usage factor (UF), i.e. temporal share of technology usage in normal operation conditions	CO ₂ emissions savings ((1 – 2) – (3 – 4))*5
xxx/20xx							

Total WLTP CO₂ emissions saving (g/km) ⁽¹³⁾

9 BODYWORK

9.1 Type of bodywork using the codes defined in Part C of Annex I of Regulation (EU) 2018/858: ...

Explanatory notes

- (1) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable).
- (2) OJ L 200, 31.7.2009, p. 1.
- (3) OJ L 325, 16.12.2019, p. 1.
- (4) Reference to Regulation (EC) No 79/2009
- (5) Reference to UN Regulation No 110
- (6) Determined in accordance with the requirements of Council Directive 80/1268/EEC (OJ L 375, 31.12.1980, p. 36).
- (7) Reference to Regulation (EU) No 2019/631
- (8) Reference to Regulation (EU) 2023/2767
- (9) Expand the table if necessary, using one extra row per eco-innovation.
- (10) Number of the Commission Decision approving the eco-innovation.
- (11) Assigned in the Commission Decision approving the eco-innovation.
- (12) Under agreement of the type-approval authority, if a modelling methodology is applied instead of the type 1 test cycle, this value shall be the one provided by the modelling methodology.
- (13) Sum of the CO₂ emissions savings of each individual eco-innovation.

Appendix 4

MODEL OF EU TYPE-APPROVAL CERTIFICATE

(Maximum format: A4 (210 × 297 mm))

EU TYPE-APPROVAL CERTIFICATE

Stamp of administration

Communication concerning the:

- EU type-approval ⁽¹⁾,
- extension of EU type-approval ⁽¹⁾,
- refusal of EU type-approval ⁽¹⁾,
- withdrawal of EU type-approval ⁽¹⁾,
- of a type of system/type of a vehicle with regard to a system ⁽¹⁾ with regard to Regulation (EU) 2024/1257 ⁽²⁾ and Regulation (EU) 2025/xxxx ⁽³⁾

EU type-approval number: ...

Reason for extension: ...

SECTION I

- 0.1. Make (trade name of manufacturer): ...
- 0.2. Type: ...
 - 0.2.1. Commercial name(s) (if available): ...
- 0.3. Means of identification of type if marked on the vehicle ⁽⁴⁾
 - 0.3.1. Location of that marking: ...
- 0.4. Category of vehicle ⁽⁵⁾
 - 0.4.2. Base vehicle ⁽⁶⁾ ⁽¹⁾: yes/no ⁽¹⁾
- 0.5. Name and address of manufacturer: ...
- 0.8. Name(s) and address(es) of assembly plant(s): ...
- 0.9. If applicable, name and address of manufacturer's representative: ...

SECTION II

- 0. Interpolation family identifier as defined in paragraph 6.2.1. of UN Regulation No 154
- 1. Additional information (where applicable): (see addendum)
- 2. Technical service responsible for carrying out the tests: ...
- 3. Date of type 1 test report: ...

4. Number of the type 1 test report: ...
5. Remarks (if any): (see Section 3 of addendum)
6. Place: ...
7. Date: ...
8. Signature: ...

Addendum to EU type-approval certificate No ...
concerning the type-approval of a vehicle with regard to exhaust and evaporative emissions according to Regulation (EU) 2024/1257 and Regulation (EU) 2025/xxxx

The information laid down in the Addendum of Annex A2 to UN Regulation No. 154, where applicable, shall be supplied.

Cross references to information in the Test Report or Information Document should be avoided when completing the type-approval certificate.

Additionally, the EU specific information in the following sections, where applicable, shall be supplied.

1. Add the following point 0.2.
- 0.2. Base vehicle identifier ⁽¹⁾
2. Add the following table to section 2.1. after the type 5 related sections (a)-(d):

Type 6	CO (g/km)	THC (g/km)
Measured value		
Limit value		

3. Add the following after section 2.5.1.4.1.:
Repeat 2.5.1. in case of base vehicle.
4. Add the following after section 2.5.3.8.3.:
Repeat 2.5.3. in case of base vehicle.
5. Add the following at the end of section 2.5.4.:
Repeat 2.5.4. in case of base vehicle
6. Add the following sections 2.6, 4 and 5 after section 2.5.5.:

“2.6. *Test results of eco-innovations* ^{(8) (9)}

Decision approving the eco-innovation ⁽¹⁰⁾	Code of the eco-innovation ⁽¹¹⁾	Type 1 cycle	1. CO ₂ emissions of the baseline vehicle (g/km)	2. CO ₂ emissions of the eco-innovation vehicle (g/km)	3. CO ₂ emissions of the baseline vehicle under type 1 test-cycle ⁽¹²⁾	4. CO ₂ emissions of the eco-innovation vehicle under type 1 test-cycle	5. Usage factor (UF) i.e. temporal share of technology usage in normal operation conditions	CO ₂ emissions savings ((1 - 2) - (3 - 4)) * 5
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xxx/20xx								
	Total CO ₂ emissions saving on WLTP (g/km) ⁽¹³⁾							

2.6.1. General code of the eco-innovation(s) ⁽¹⁴⁾: ...”

4. POWER MEASUREMENT

Maximum engine net power of internal combustion engine, net power and maximum 30 minutes power of electric drive train

4.1. Internal combustion engine net power

- 4.1.1. Engine speed (min⁻¹) ...
- 4.1.2. Measured fuel flow (g/h) ...
- 4.1.3. Measured torque (Nm) ...
- 4.1.4. Measured power (kW) ...
- 4.1.5. Barometric pressure (kPa) ...
- 4.1.6. Water vapour pressure (kPa) ...
- 4.1.7. Intake air temperature (K) ...
- 4.1.8. Power correction factor when applied ...
- 4.1.9. Corrected power (kW) ...
- 4.1.10. Auxiliary power (kW) ...
- 4.1.11. Net power (kW) ...
- 4.1.12. Net torque (Nm) ...
- 4.1.13. Corrected specific fuel consumption (g/kWh) ...

4.2. Electric drive train(s):

- 4.2.1. Declared figures
- 4.2.2. Maximum net power: ... kW, at ... min⁻¹
- 4.2.3. Maximum net torque: ... Nm, at ... min⁻¹
- 4.2.4. Maximum net torque at zero engine speed: ... Nm
- 4.2.5. Maximum 30 minutes power: ... kW

- 4.2.6. Essential characteristics of the electric drive train
- 4.2.7. Test DC voltage: ... V
- 4.2.8. Working principle: ...
- 4.2.9. Cooling system:
- 4.2.10. Motor: liquid/air ⁽¹⁾
- 4.2.11. Variator: liquid/air ⁽¹⁾
- 5. REMARKS: ...

Explanatory Notes

- (1) Delete where not applicable (there are cases where nothing needs to be deleted when more than one entry is applicable)
- (2) Reference to Regulation (EU) 2024/1257
- (3) Reference to this Regulation, Regulation (EU) 2025/xxxx
- (4) If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this information, such characters shall be represented in the documentation by the symbol ‘?’ (e.g. ABC??123??)
- (5) As defined in Article 4 of Regulation (EU) 2018/858
- (6) As defined in Article 3(24) of Regulation (EU) 2018/858
- (7) As referred to in Article 26(4) of Regulation (EU) 2018/858
- (8) Repeat the table for each reference fuel tested.
- (9) Expand the table if necessary, using one extra row per eco-innovation.
- (10) Number of the Commission Decision approving the eco-innovation.
- (11) Assigned in the Commission Decision approving the eco-innovation.
- (12) If modelling is applied instead of the Type 1 test-cycle, this value shall be the one provided by the modelling methodology.
- (13) Sum of the emissions saving of each individual eco-innovation on Type 1
- (14) The general code of the eco-innovation(s) shall consist of the following elements, each separated by a blank space:
 - Section 1 as set out in Annex IV to Regulation (EU) 2018/858;
 - Individual code of each eco-innovation fitted in the vehicle, indicated in chronological order of the Commission approval decisions.
 (E.g. the general code of three eco-innovations approved chronologically as 10, 15 and 16 and fitted to a vehicle certified by the type-approval authority in Germany should be: ‘e1 10 15 16’)

Appendix 5

(Reserved)

Appendix 6

Emission level and Emission Type–Approval Certification Numbering System and Certificate of Conformity

1. The Certificate of Conformity, as described in the Appendix to Annex VIII of Regulation (EU) 2020/683 - Model B-Part 2 contains references to the exhaust emission level (entry 47) and the relevant EU implementing regulatory acts (entry 48 Model B-Part 2) of an individual vehicle. Entry 47 shall contain the number of the Euro level (Euro 7), followed by the relevant character from Table 1. Entry 48 shall contain the approval certificate numbers of all relevant EU Implementing Regulations.
2. Section 2 of the approval certificate numbers issued according to Article 8(2) of this Regulation and referred to in entry 48 of Annex VIII under Model B-Part 2 to Regulation (EU) 2020/683, shall be composed by the number of the base implementing regulatory act. Section 3 of the approval certificate number shall be composed by the number of the latest amending Implementing Act applicable. The number of the latest amending implementing Act shall be directly followed by one of the two-letter characters from Table 2, i.e. without an asterisk being placed between this number and the relevant two-letter character.
3. The declaration of compliance provided for the OBM system and EVP as described in Appendix 1 of Annex VI to Regulation (EU) *<publication office to insert the reference number of the Second Implementing Act>*, shall contain the applicable sub-character(s) from Table 3. These sub-characters are used for the determination of the emission level in accordance with Table 1.

Table 1
Emission level

Emission Character⁶	Emission standard	Sub-character for this regulation (see Table 2)	Sub-character for OBM and EVP (see Table 3)	Vehicle category or product type	In-vehicle battery durability³	Brake emissions	EV system power²	EV-range at low temp.³	Last date of registration
TL ¹	Euro 7-TEMP	MT, MA, MC or ME	OA, OC or OE	M ₁ , N ₁	N/A	N/A	N/A	N/A	28.11.2027
TE ¹	Euro 7-TEMP	MV ⁴ , MB, MD or MF	OB, OD or OF	N ₂ (Euro 7ext)	N/A	N/A	N/A	N/A	28.05.2029
TS ¹	Euro 7-TEMP	NA or NC	PA, PC or PE	M ₁ , N ₁ (U)SVM	N/A	N/A	N/A	N/A	30.06.2030
TT ¹	Euro 7-TEMP	NB or ND	PB, PD or PF	N ₂ (Euro 7ext) (U)SVM	N/A	N/A	N/A	N/A	30.06.2031
FL	Euro 7A	MA, MC ⁴ or ME	OA, OC or OE	M ₁ , N ₁	UA or UB	RA or RB	SA	LA	31.12.2029 ⁵
FE	Euro 7A	MB, MD ⁴ or MF	OB, OD or OF	N ₂ (Euro 7ext)	UC	RC or RD	SB	LB	31.12.2029 ⁵
GL	Euro 7B	MA or ME	OA, OC or OE	M ₁ , N ₁	UA or UB	RE	SA	LA	31.12.2034 ⁵
GE	Euro 7B	MB or MF	OB, OD or OF	N ₂ (Euro 7ext)	UC	RE	SB	LB	31.12.2034 ⁵
GS	Euro 7BS	NA or NC	PA, PC or PE	M ₁ , N ₁ (U)SVM	UD or UE	RF	SC	LC	31.12.2034 ⁵
GT	Euro 7BT	NB or ND	PB, PD or PF	N ₂ (Euro 7ext) (U)SVM	UF	RG	SD	LD	31.12.2034 ⁵
HL	Euro 7C	MA or ME	OA, OC or OE	M ₁ , N ₁	UA or UB	RH	SA	LA	

HE	Euro 7C	MB or MF	OB, OD or OF	N ₂ (Euro 7ext)	UC	RH	SB	LB	
HS	Euro 7CS	NA or NC	PA, PC or PE	M ₁ , N ₁ (U)SVM	UD or UE	RH	SC	LC	
HT	Euro 7CT	NB or ND	PB, PD or PF	N ₂ (Euro 7ext) (U)SVM	UF	RH	SD	LD	

- (1) Voluntary application before the mandatory application date for new vehicle types with regard to emissions: 29.05.2025. Only applicable if available at the time of approval.
- (2) Only applicable for hybrid vehicles and for PEVs with multiple motors.
- (3) Only applicable for PEVs and OVC-HEVs.
- (4) Early last date of registration.
- (5) This date is applicable if not impacted by a sub-approval with an early last date of implementations, indicated by footnote 4 in the table.
- (6) First letter of Character: T = TEMP-vehicle, F = Euro 7A, G = Euro 7B, H = Euro 7C.
- (7) Second letter of Character: L = large volume manufacturer, E = Euro 7ext-vehicle, S = SVM, T = Euro 7ext-vehicle from SVM.

Key:
‘Euro 7-TEMP’ TL/TE emissions standard = Euro 7 emissions (this implementing act) with the implementing act on on-board monitoring, environmental vehicle passport and OBFCM;

‘Euro 7-TEMP’ TS/TT emissions standard = Euro 7 emissions (this implementing act) with the implementing act on on-board monitoring, environmental vehicle passport and OBFCM (only EVP is relevant) and voluntary any other Euro 7 implementing act for (ultra) small volume manufacturers.

Table 2

Sub-character table for this regulation

Sub-character	Description	Vehicle category or product type	Powertrain	Implementation date: new types	Implementation date: new vehicles	Last date of registration
MA	General	M ₁ , N ₁	ICE, NOVC-HEV	29.11.2026	29.11.2027	
MT	UF EB ⁽⁸⁾	M ₁ , N ₁	OVC-HEV			28.11.2027
MA	UF EC ⁽⁹⁾	M ₁ , N ₁	OVC-HEV	29.11.2026	29.11.2027	
MB	EXT	N ₂ (Euro 7ext)	ICE, NOVC-HEV	29.05.2028	29.05.2029	
MV	UF EB ⁽⁸⁾ EXT	N ₂ (Euro 7ext)	OVC-HEV			31.12.2027

MB	UF EC ⁽⁹⁾ EXT	N ₂ (Euro 7ext)	OVC-HEV	29.05.2028	29.05.2029	
MC	PEV, FCHEV- W/O OBFCM	M ₁ , N ₁	PEV, FCHEV			28.11.2027
MD	PEV, FCHEV EXT-W/O OBFCM	N ₂ (Euro 7ext)	PEV, FCHEV			28.05.2029
ME	PEV, FCHEV- WITH OBFCM	M ₁ , N ₁	PEV, FCHEV	29.11.2026	29.11.2027	
MF	PEV, FCHEV EXT-WITH OBFCM	N ₂ (Euro 7ext)	PEV, FCHEV	29.05.2028	29.05.2029	
NA	(U)SVM General	M ₁ , N ₁	ICE, NOVC- HEV, OVC- HEV	N/A	01.07.2030	
NB	(U)SVM EXT	N ₂ (Euro 7ext)	ICE, NOVC- HEV, OVC- HEV	N/A	01.07.2031	
NC	(U)SMV PEV, FCHEV	M ₁ , N ₁	PEV, FCHEV	N/A	01.07.2030	
ND	(U)SVM PEV, FCHEV EXT	N ₂ (Euro 7ext)	PEV, FCHEV	N/A	01.07.2031	

(8) For OVC-HEVs using the utility factor from Euro 6e-bis (EB) according to Annex XIV to Regulation (EU) 2023/443.

(9) For OVC-HEVs using the utility factor from Euro 6e-bis-FCM (EB) according to Annex XIV to Regulation (EU) 2023/443.

Table 3

Sub-character table for OBM and EVP

Sub-character	Description	Vehicle category or product type	Powertrain	Implementation date: new types	Implementation date: new vehicles	Last date of registration
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OA	General	M ₁ , N ₁	ICE, NOVC-HEV, OVC-HEV	29.11.2026	29.11.2027	
OB	EXT	N ₂ (Euro 7ext)	ICE, NOVC-HEV, OVC-HEV	29.05.2028	29.05.2029	
OC	PEV	M ₁ , N ₁	PEV	29.11.2026	29.11.2027	
OD	PEV EXT	N ₂ (Euro 7ext)	PEV	29.05.2028	29.05.2029	
OE	FCHEV	M ₁ , N ₁	FCHEV	29.11.2026	29.11.2027	
OF	FCHEV EXT	N ₂ (Euro 7ext)	FCHEV	29.05.2028	29.05.2029	
PA	(U)SVM General	M ₁ , N ₁	ICE, NOVC-HEV, OVC-HEV	N/A	01.07.2030	
PB	(U)SVM EXT	N ₂ (Euro 7ext)	ICE, NOVC-HEV, OVC-HEV	N/A	01.07.2031	
PC	(U)SVM PEV	M ₁ , N ₁	PEV	N/A	01.07.2030	
PD	(U)SVM PEV EXT	N ₂ (Euro 7ext)	PEV	N/A	01.07.2031	
PE	(U)SVM FCHEV	M ₁ , N ₁	FCHEV	N/A	01.07.2030	
PF	(U)SVM FCHEV EXT	N ₂ (Euro 7ext)	FCHEV	N/A	01.07.2031	

Appendix 7

(Reserved)

Appendix 8a

Test reports

A Test Report is the report issued by the technical service responsible for conducting the tests according to this regulation.

The information laid down in Part I of Appendix 1 of Annex A1 to UN Regulation No. 154 in relation to Level 1A, where applicable, shall be included.

Together with the EU specific information in the following sections, where applicable, it is the minimum data required for the test report.

1. In section 2.1.1.2.1 'CO₂ emission of vehicles with at least one combustion engine, of NOVC-HEV and of OVC-HEV in the case of a charge-sustaining Type 1 test', add the following to the Conclusion:

Information for Conformity of Production for OVC-HEV

	Combined
CO ₂ emission (g/km) M _{CO₂} ,CS,COP	
AF _{CO₂} ,CS	

2. Add the following section 2.3.:

2.3. *Type 3 (a) test*

Emission of crankcase gases into the atmosphere: none

3. 2. Add the following section 2.6.:

2.6. *Real Driving Emissions test (RDE)*

RDE family number	:	MSxxxx
See family report(s)	:	

4. 3. Add the following section 2.7.:

2.7. *Type 6 test (a)*

Family's identifier	:	
Date of tests	:	(day/month/year)
Place of tests	:	
Method of setting of the chassis dyno	:	coast down (road load reference)
Inertia mass (kg)	:	
If deviation from the vehicle of Type 1 test	:	
Tyres	:	
Make	:	
Type	:	
Dimensions front/rear	:	
Dynamic circumference (m)	:	

Tyre pressure (kPa)	:	
---------------------	---	--

Pollutants		CO (g/km)	HC (g/km)
Test	1		
	2		
	3		
Average			
Limit			

5. Add the following section 2.10.:

2.10. *Engine power*

See report(s) or approval number	:	
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Appendix 8b
Road Load Test Report

The information laid down in Appendix 2 of Annex A1 to UN Regulation No. 154 in relation to Level 1A, where applicable, shall be included.

Appendix 8c
Template for test sheet

The test sheet shall include the test data that are recorded, but not included in any test report.

The test sheet(s) shall be retained by the technical service or the manufacturer for at least 10 years.

The information laid down in Appendix 3 of Annex A1 to UN Regulation No. 154 in relation to Level 1A, where applicable, is the minimum data required for the test sheets.

Appendix 8d
Evaporative Emission Test Report

The information laid down in Appendix 4 of Annex A1 to UN Regulation No. 154 in relation to Level 1A, where applicable, is the minimum data required for the evaporative emission test.

ANNEX II

IN-SERVICE CONFORMITY METHODOLOGY

1. INTRODUCTION

This Annex sets out the in-service conformity (ISC) methodology for checking compliance against the emission limits for tailpipe (including low temperature) and evaporative emissions throughout the additional lifetime of the vehicle, as set out in Table 1 of Annex IV to Regulation (EU) 2024/1257.

2. GENERAL REQUIREMENTS

The general requirements for conducting in-service conformity testing set out in Article 11 apply.

3. TECHNICAL REQUIREMENTS

The technical requirements for conducting in-service conformity testing shall be those set out in Annex 4 of UN Regulation No. 83⁴ with the exceptions described in the points below. The rules for performing type 4 tests during in-service conformity are set out in Appendix 1.

3.1. The Process Description in section 2 shall read as follows:

2. PROCESS DESCRIPTION

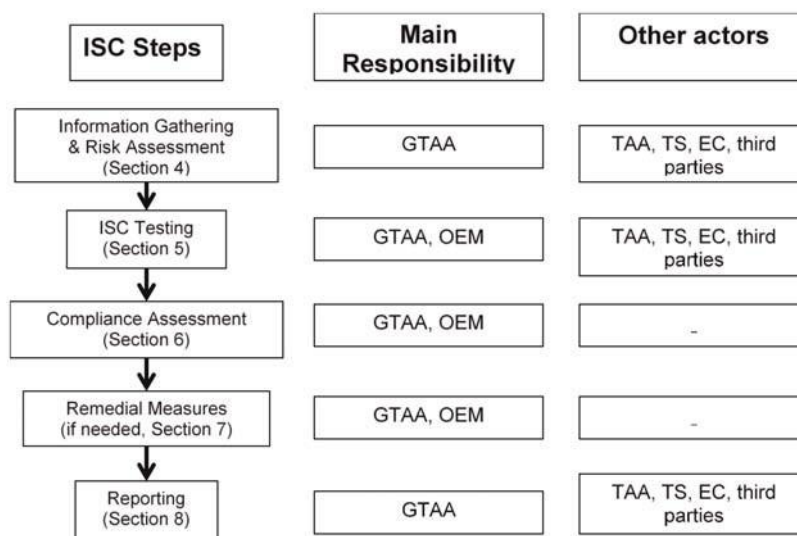


Figure 1

Illustration of the in-service conformity process (where GTAA refers to the granting type-approval authority, OEM refers to the manufacturer, and Other Actors are defined as: TAA refers to approval authorities other than the one granting the relevant type-approval, TS refer to technical services, EC to the Commission, and third parties that meet the requirements laid down in Regulation (EU) 2022/163 ⁽⁵⁾)

⁴ UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

⁵ Commission Implementing Regulation (EU) 2022/163 of 7 February 2022 laying down rules on the application of Regulation (EU) 2018/858 of the European Parliament and of the Council as regards

- 3.2. The first 3 paragraphs of section 5 shall read as follows:

5. ISC TESTING

The manufacturer shall perform ISC testing for tailpipe emissions comprising at least the Type 1 test for all ISC families. The manufacturer may also perform RDE, Type 4 and Type 6 tests for all or part of the ISC families. The manufacturer shall report to the granting type-approval authority all results of the ISC testing using the Electronic Platform for in-service conformity described in point 5.9, or other appropriate means where this is not possible.

The granting type-approval authority shall check an appropriate number of ISC families each year, as set out in point 5.4. The granting type-approval authority shall include all results of the ISC testing in the Electronic Platform for in-service conformity described in point 5.9.

Other actors may perform checks on any number of ISC families each year. They shall report to the granting type-approval authority all results of the ISC testing using the Electronic Platform for in-service conformity described in point 5.9, or other appropriate means where this is not possible.

- 3.3. The first paragraph of section 5.7.1. shall read as follows:

5.7.1. General requirements

The vehicle shall belong to an ISC family as described in point 3 and shall comply with the checks set out in the table in Appendix 1. It shall be registered in the Union and have been driven in the Union for at least 90 % of its driving time. The emissions testing may be done in a different geographical region from that where the vehicles have been selected. In case of ISC testing conducted by the manufacturer, with the agreement of the granting type-approval authority, vehicles registered in a non-EU country may be tested, if they belong to the same ISC family and are accompanied by a certificate of conformity.

- 3.4. The final paragraph of section 5.7.1. shall read as follows:

A vehicle shall be excluded from ISC testing if the fuel from the vehicle tank does not meet the applicable standards laid down in Directive 98/70/EC ⁽⁶⁾ or if there is evidence or record of fueling with the wrong type of fuel.

- 3.5. Section 5.8 shall read as follows:

5.8. Sample size

When manufacturers apply the statistical procedure set out in point 5.10 for the Type 1 test, the number of sample lots shall be set on the basis of the annual sales volume of an in-service family in the Union, as described in the following table:

Table 1

Number of sample lots for ISC testing with Type 1 tests

EU Registrations per calendar year of vehicles in the sampling period	Number of sample lots (for Type 1 tests)
up to 100 000	1

functional requirements for market surveillance of vehicles, systems, components and separate technical units (OJ L 27, 8.2.2022, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2022/163/oj).

⁶ Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels (OJ L 350, 28.12.1998, p. 58, ELI: <http://data.europa.eu/eli/dir/1998/70/oj>).

100 001 to 200 000	2
above 200 000	3

Each sample lot shall include enough vehicle types (with regard to emissions), in order to ensure that at least 20 % of the total registrations of this PEMS family in the EU for the previous year are covered. In case the same PEMS family is shared between more brands, then all brands shall be tested. When a family requires more than one sample lot to be tested, the vehicles selected in the second and third sample lots shall have been used in different ambient and/or typical use conditions from those selected for the first sample.

- 3.6. Section 5.9. above Table A4/2 shall read as follows:

5.9. Use of the Electronic Platform for in-service conformity and access to data required for testing

The Commission has set up an electronic platform in order to facilitate the exchange of data between on the one side, the manufacturers, other actors and on the other side the granting type-approval authority and the taking of the decision on the sample fail or pass.

The manufacturer shall complete the package on Testing Transparency referred to in Article 7 (9) in the format specified in Tables 1 and 2 of Appendix 5 and in Table 2 in this point and transmit it to the type- approval authority which grants the emission type-approval. Table 2 of Appendix 5 shall be used in order to allow the selection of vehicles from the same family for testing and along with Table 1 of Appendix 5 provide sufficient information for vehicles to be tested.

The type-approval authority which grants the emission type- approval shall upload the information in Tables 1 and 2 of Appendix 5 to the electronic platform referred to in the first paragraph within 5 working days of receiving it.

- 3.7. In paragraph 5.10.1. after the third sub-paragraph the following new sub-paragraph shall be added to read:

For vehicles that have Declared Maximum RDE Values reported in point 48.2 of the Certificate of Conformity, which is lower than the emission limits set out in Table 1 of Annex I to Regulation (EU) 2024/1257, the conformity shall be checked against these Declared Maximum RDE Values. If the sample is found not to conform with the Declared Maximum RDE Values, the granting type-approval authority shall require the manufacturer to take corrective actions.

- 3.8. In paragraph 5.10.1. a new final sub-paragraph shall be added to read:

The functions described above shall be executed directly in the Electronic Platform once the relevant functions are available.

- 3.9. Section 5.10.2. shall read as follows:

5.10.2. Pooling of ISC results

Test results from other actors may be pooled for the purposes of a common statistical procedure. The pooling of test results shall require the written consent from all the interested parties providing test results to a pool of results, and a notification to the type-approval authorities, and to the electronic platform, prior to the start of testing. One of the parties shall be designated as leader of the pool and be responsible for data reporting and communication with the granting type- approval authority.

- 3.10. The first paragraph of Section 5.10.3. shall read as follows:

5.10.3. Pass/Fail/Invalid outcome for a single test

An ISC emissions test shall be considered as ‘passed’ for one or more pollutants when the emissions result is equal or below the emission limit set out in Table 1 of Annex I to Regulation (EU) 2024/1257 for that type of test. When testing vehicles in the additional lifetime, the durability multipliers for adjusting the emission limits under Annex I to Regulation (EU) 2024/1257 shall be used.

- 3.11. The following section 5.10.6. shall be added:

5.10.6. ISC for completed vehicles and multistage special purpose vehicles

The manufacturer of the base vehicle shall determine the allowed values for the parameters listed

in Table 3. The allowed Parameter Values for each family shall be recorded in the information document of the emissions type-approval (see Appendix 3 to Annex I) and in the Transparency list 1 of Appendix 5. The final-stage manufacturer shall only be allowed to use the base vehicle emission values if the completed vehicle remains within the allowed Parameter Values. The parameter values for each final vehicle shall be recorded in its Certificate of Conformity.

Table 3

Allowed Parameter Values for multistage and multistage special purpose vehicles to use the base vehicle emission type-approval

Parameter Values	Allowed values from - to
Final Vehicle actual mass (in kg)	
Final Vehicle technically permissible maximum laden mass (in kg)	
Frontal area for final vehicle (in cm ²)	
Rolling resistance (kg/t)	
Projected frontal area of air entrance of the front grille (in cm ²)	

If a completed or multistage special purpose vehicle is tested and the result of the test is below the applicable emission limit, the vehicle shall be considered as a pass for the ISC family for the purposes of point 5.10.3.

If the result of the test on a completed or multistage special purpose vehicle exceeds the applicable emission limits but is not higher than 1,3 times the applicable emission limits, the tester shall examine whether that vehicle complies with the values in Table 3. Any non-compliance with these values shall be reported to the granting type-approval authority. If the vehicle does not comply with those values, the granting type-approval authority shall investigate the reasons for the non-compliance and take the appropriate measures regarding the manufacturer of the completed or multistage special purpose vehicle to restore conformity, including the withdrawal of the type-approval. If the vehicle complies with the values in Table 3, it shall be considered as a flagged vehicle for the in-service conformity family for the purposes of point 6.1.

If the result of the test exceeds 1,3 times the applicable emission limits, shall be considered as a fail for the in-service conformity family for the purposes of point 6.1., but not as an outlier for the relevant ISC family. If the completed or multistage special purpose vehicle does not comply with the values in Table 3, this shall be reported to the granting type-approval authority, who shall investigate the reasons for the non-compliance and take the appropriate measures regarding the manufacturer of the completed or multistage special purpose vehicle to restore conformity, including the withdrawal of the type-approval.

3.12. Section 6.1. shall read as follows:

6.1. Within 10 working days of the end of the ISC testing for the sample as referred to in point 5.10.5, the granting type-approval authority shall start detailed investigations with the manufacturer in order to decide whether the ISC family (or part of it) complies with the ISC rules and whether it requires remedial measures. For multistage or special purpose vehicles the granting type-approval authority shall also perform detailed investigations when there are at least three faulty vehicles with the same fault or five flagged vehicles in the same ISC family, as set out in point 5.10.6.

3.13. Section 7.6. shall read as follows:

7.6. If the granting type-approval authority does not approve the second plan submitted by the manufacturer, it shall take all appropriate measures, in accordance with Article 53 of

Regulation (EU) 2018/858, to restore conformity, including withdrawal of type-approval where necessary.

- 3.14. Point 4 in Appendix 3 shall read as follows:
4. Date of transmission to GTAA or upload to Electronic Platform
- 3.15. The description in row ID 1 of Table 1 in Appendix 5 should read as follows:
‘As reported on the model of the EU type-approval certificate in Annex I/Appendix 4 to this regulation’
- 3.16. The description in row ID 2 of Table 1 in Appendix 5 should read as follows:
‘As reported in Annex I, Appendix 4, Section II, Point 0 to this regulation and in UN Regulation No. 154 ⁽⁷⁾, Annex A2, Addendum to type-approval communication item 0.1: Interpolation Family Identifier as defined in paragraph 6.2.6. of the same regulation’
- 3.17. The description in row ID 7 of Table 1 in Appendix 5 should read as follows:
‘As reported in paragraph 0.2.3.4.1. of Annex A1 of UN Regulation No 154 for RL and paragraph 0.2.3.5. for RM’
- 3.18. The type of data in row ID 18, ID 19, ID 42 and ID 43 of Table 1 in Appendix 5 should read as follows:
‘Possible formats: pdf, jpg.’
- 3.19. The description in row ID 33 of Table 1 in Appendix 5 should read as follows:
‘Optional for NOVC and OVC-HEVs, correction of CS CO₂ emissions as defined in paragraph 2 of Appendix 2 to Annex B8 of UN Regulation No 154’
- 3.20. Table 1 in Appendix 5 shall include additional rows between rows 44a and 49 as follows:

	For multistage or multistage special purpose vehicles			
45	Allowed final Vehicle mass in running order	Number	Kg	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 ⁽⁸⁾ From-to
45a	Allowed final Vehicle actual mass	Number	kg	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 From-to
45b	Allowed Vehicle technically permissible maximum laden mass (in kg)	Number	kg	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 From-to

⁷ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

⁸ Commission Implementing Regulation (EU) 2020/683 of 15 April 2020 implementing Regulation (EU) 2018/858 of the European Parliament and of the Council with regards to the administrative requirements for the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (OJ L 163, 26.5.2020, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2020/683/oj).

46	Allowed frontal area for final vehicle	Number	cm ²	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 From-to
47	Allowed Rolling resistance	Number	kg/t	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 From-to
48	Allowed projected frontal area of air entrance of the front grille	Number	cm ²	As reported in point 0.2.2.1 in Annex I of Regulation (EU) 2020/683 From-to
FOR ALL VEHICLES				

3.21. Table 2 in Appendix 5 shall be read as follows:

Table 2

Transparency list 2

Field	Type of data	Description
TVV	Text	Unique identifier of the Type, Variant, Version of the vehicle as reported in point 0.2. of the Certificate of Conformity, Annex VIII to Regulation (EU) 2020/683, Appendix Part 1.
PEMS Family ID	Text	As reported in Annex III of this regulation, point 3.5.2.
Make	Text	Trade name of manufacturer, point 0.1 of Annex I to Regulation (EU) 2020/683.
Commercial name	Text	Commercial names of the TVV, point 0.2.1 of Annex I to Regulation (EU) 2020/683.
Other name	Text	Free text
Category and class	Enumeration (M ₁ , N ₁ class I, N ₁ class II, N ₁ class III, N ₂ , N ₃ , M ₂ , M ₃)	Category and class of vehicle, Annex I, Table 1 to Regulation (EU) 2024/1257.

Bodywork	Enumeration (AA Saloon; AB Hatchback, AC Station Wagon, AD Coupe, AE Convertible, AF Multi-purpose vehicle, AG Truck station wagon, BA Lorry, BB Van, BC Tractor unit for semi-trailer, BD Road tractor, BE Pick-up truck, BX Chassis-cab or chassis-cowl)	Type of bodywork, Annex I to Regulation (EU) 2020/683, point 0.3.0.2.
Emission TA Number	Text	As reported on the model of the EU type-approval certificate in Annex I/Appendix 4 to this regulation.
WVTA Number	Text	Identifier of the Whole Vehicle Type-Approval as defined in Annex IV to Regulation (EU) 2020/683.
Evap family ID	Text	As reported in paragraph 0.2.3.7 of Annex A1 of UN Regulation No 154
Rated Engine Power fuel 1, fuel 2 (if relevant)	Number	Paragraph 3.2.1.8 of Annex A1 of UN Regulation No 154
Twin tires	Yes/No	Declared by OEM.
Fuel Tank Capacities (discreet values)	Number	Fuel tank(s) capacity(ies), point 3.2.3.1.1 of Annex I to Regulation (EU) 2020/683.
Sealed tank	Yes/No	Point 3.2.12.2.5.5.3 of Annex I to Regulation (EU) 2020/683.
WMI used in this WVTA+TVV	Text	Declared by the OEM (ISO 3779)

Appendix 1

Rules for performing type 4 tests during in-service conformity

Type 4 tests for in-service conformity shall be performed in accordance with Annex VI, with the following exceptions:

- vehicles tested with the Type 4 test shall be at least 12 months of age.
- the canister shall be considered aged and therefore the Canister Bench Ageing procedure shall not be followed.
- the canister shall be loaded outside the vehicle, following the procedure described for this purpose in Annex VI and shall be removed and mounted to the vehicle following the repair instructions of the manufacturer. Before and after the loading a FID sniff test (with results less than 100 ppm at 20 °C) shall be made as close as possible to the canister to confirm that the canister is mounted properly.

— the tank shall be considered aged and therefore no Permeability Factor shall be added in the calculation of the result of the Type 4 test.

ANNEX III

VERIFYING REAL DRIVING EMISSIONS

1. INTRODUCTION

This Annex describes the procedure for determining Real Driving Emission.

2. GENERAL REQUIREMENTS

2.1. The general requirements for conducting the RDE test shall be those set out in UN Regulation No 168 ⁽⁹⁾.

2.2. For vehicle types with regards to emissions approved according to this Annex, the final RDE emission results calculated according to this Annex at any possible RDE test performed in accordance with the requirements of this Annex, shall not be higher than any of the relevant Euro 7 emission limits laid down in Table 1 of Annex I to Regulation (EU) 2024/1257.

2.3. The manufacturer may declare compliance with lower emission limits by declaring lower values called 'Declared Maximum RDE', either for NOx or PN or both, in the Manufacturer's RDE certificate of compliance and the Certificate of Conformity of each vehicle. These Declared Maximum RDE values shall be used for checking the compliance of cars when applicable, including for tests performed during In-service Conformity and Market Surveillance.

3. TECHNICAL REQUIREMENTS

The technical requirements for conducting the RDE test shall be those set out in paragraph 6. and Annexes of UN Regulation No 168, with the exceptions described in the points below.

3.1. The following definition is added after paragraph 3.1.:

'Declared Maximum RDE' means the emission values, which shall necessarily be lower than the applicable emission limits, declared optionally by the manufacturer and used for checking compliance against lower emission limits.'

3.2. Paragraph 10.8. of UN Regulation No 168 shall read as follows:

'10.8. Data Reporting: All data of a single RDE test shall be recorded according to the data exchange and data reporting files provided by the Commission ⁽¹⁰⁾.'

3.3. The following paragraphs are added after paragraph 10.8. of UN Regulation No 168:

'10.9. *Reporting and dissemination of RDE type-approval test information*

10.9.1. A technical report prepared by the manufacturer shall be made available to the approval authority. The technical report is composed of 4 items:

(i) the Data Exchange file

(ii) the Reporting file

(iii) the Vehicle and engine description as described in Appendix 4 of Annex I of this Regulation;

(iv) visual supporting material (photographs and/or videos) of the PEMS installation in the tested vehicle of adequate quality and quantity to identify the vehicle and to assess if the installation of the PEMS main unit, the EFM, the GNSS antenna, and the weather station follow the instrument manufacturers recommendations and the general good practices of PEMS testing.

10.9.2. The manufacturer shall ensure that the information listed in paragraph 10.9.2.1. is made available on a publicly accessible website without costs and without the need for the user to reveal his identity or sign up. The manufacturer shall keep the Commission and Type Approval Authorities informed on the location of the website.

⁹ UN Regulation No 168 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to real driving emissions (RDE) [2024/211] (OJ L, 2024/211, 12.1.2024, ELI: <http://data.europa.eu/eli/reg/2024/211/oj>).

¹⁰ To be found in CIRCABC link: <https://circabc.europa.eu/ui/group/f4243c55-615c-4b70-a4c8-1254b5eebf61/library/a0be83ba-89bd-4499-8189-2696362d2f72?p=1>

- 10.9.2.1. The website shall allow a wildcard search of the underlying database based on one or more of the following:
Make, Type, Variant, Version, Commercial name, or Type Approval Number as referred to in the certificate of conformity, pursuant to Annex VIII to Regulation (EU) 2020/683.
The information described below shall be made available for each vehicle in a search:
— The PEMS family ID to which that vehicle belongs, in accordance with the Transparency List 2 of Annex II to this Regulation;
— The Declared Maximum RDE Values as reported in point 48.2 of the Certificate of Conformity, as described in Annex VIII to Regulation (EU) 2020/683.

- 10.9.2.2. Upon request, without costs and within 10 days, the manufacturer shall make available the technical report referred to in paragraph 10.9.1. to any third party and the Commission. The manufacturer shall also make available the technical report referred to in paragraph 10.9.1. upon request and with a reasonable and proportionate fee to others, which does not discourage an inquirer with a justified interest from requesting the respective information or exceed the internal costs of the manufacturer for making the requested information available.
Upon request, the type-approval authority shall make available the information listed under paragraphs 10.9.1. and 10.9.2. without costs and within 10 days of receiving the request to any third party or the Commission. The type-approval authority shall also make available to others upon request the information listed under paragraphs 10.9.1. and 10.9.2. with a reasonable and proportionate fee, which does not discourage an inquirer with a justified interest from requesting the respective information or exceed the internal costs of the authority for making the requested information available.’

- 3.4. The first sentence of Paragraph 6.1. of Annex 5 to UN Regulation No 168 shall read as follows:
The PN analyser shall consist of a pre-conditioning unit and a particle detector that counts with 65 per cent efficiency from approximately 10 nm.’
- 3.5. The legend in Figure A5/1 of Paragraph 6.1. of Annex 5 to UN Regulation No 168 shall read as follows:
(Dotted lines depict optional parts. The heated section shall be catalytically active. EFM = Exhaust mass Flow Meter, d = inner diameter, PND = Particle Number Diluter)
- 3.6. The first sentence of P the fourth paragraph of Paragraph 6.1. of Annex 5 to UN Regulation No 168 shall read as follows:
The PN analyser shall include a catalytically active heated section at wall temperature ≥ 573 K.
- 3.7. The last sentence of Paragraph 6.1. of Annex 5 to UN Regulation No 168 does not apply.
- 3.8. Table A5/3a in Paragraph 6.2. of Annex 5 to UN Regulation No 168 shall read as follows:

d_p [nm]	10	15	30	50	70	100	200
$E(d_p)$ PN analyser	0,1 – 0,5	0,3 – 0,7	0,75 – 1,05	0,85 – 1,15	0,85 – 1,15	0,80 – 1,20	0,80 – 2,00

- 3.9. The first paragraph under Table A5/3a of Paragraph 6.1. of Annex 5 to UN Regulation No 168 shall read as follows:

Efficiency $E(d_p)$ is defined as the ratio in the readings of the PN analyser system to a reference Condensation Particle Counter (CPC)’s (with counting efficiency above 90 per cent for 10 nm equivalent electrical mobility diameter, checked for linearity and calibrated with an electrometer) or an Electrometer’s number concentration measuring in parallel monodisperse aerosol of mobility diameter d_p and normalized at the same temperature and pressure conditions.

- 3.7. The third sentence sentence of Paragraph 6.3. of Annex 5 to UN Regulation No 168 shall read as follows:
The reference instrument shall be an Electrometer or a Condensation Particle Counter (CPC) with counting efficiency above 90 per cent for 10 nm equivalent electrical mobility diameter, verified for linearity.
- 3.8. The last sentence of the first paragraph of Paragraph 6.3. of Annex 5 to UN Regulation No 168 shall read as follows:
Alternatively, a particle number system compliant with UN Regulation No. 154 on WLTP with a

counting efficiency above 90 per cent for 10 nm equivalent electrical mobility diameter can be used as reference instrument for the linearity check of the complete system.

- 3.10. The first and second sentence of Paragraph 6.4. of Annex 5 to UN Regulation No 168 shall read as follows:

The system shall achieve > 99.9 per cent removal of ≥ 30 nm tetracontane ($\text{CH}_3(\text{CH}_2)_{38}\text{CH}_3$) particles with an inlet concentration of $\geq 10\,000$ particles per cubic-centimetre at the minimum dilution.

The system shall also achieve a > 99.9 per cent removal efficiency of tetracontane with count median diameter > 50nm and mass > 1 mg/m³.



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ANNEXES 4 to 12

ANNEXES

to the

Commission Implementing Regulation

**laying down rules, procedures and testing methodologies for the application of
Regulation (EU) 2024/1257 as regards exhaust and evaporative emission type-approval
of vehicles of categories M₁ and N₁**

ANNEX IV

MANIPULATION DEVICES AND MANIPULATION STRATEGIES

1. INTRODUCTION

- 1.1. This Annex sets out the tests, methods and procedures for establishing the absence of manipulation devices and manipulation strategies as construed under Article 4(5) of Regulation (EU) 2024/1257 and in accordance with manufacturers' obligations under Article 4 of the same Regulation.
- 1.2. This Annex also specifies the documentation that ensures the proper monitoring and enforcement of rules related to manipulation devices and manipulation strategies. It aims to strengthen emissions control mechanisms, enhance transparency, and ensure that vehicles comply with regulatory requirements for the lifetime of the vehicles, particularly Euro 7 exhaust emission and evaporative emission limits under the conditions set out in Annex III of Regulation (EU) 2024/1257 as well as the prohibition of manipulation devices and manipulation strategies.
- 1.3. Specifications for methodologies, tests and procedures that relate to data integrity, such as manipulation of data related to sensors, fuel or electric energy consumption, electric range or battery durability, are provided for in Regulation (EU) *<publication office to insert the reference to the Second Implementing Act>*.
- 1.4. This Annex also sets out roles and responsibilities for the actors involved to ensure compliance with the above-mentioned regulatory requirements and prohibition of manipulation devices and manipulation strategies.
- 1.5. For the purposes of this Annex, manipulation devices and manipulation strategies should be construed as set out by Article 3(41) and 3(42) of Regulation (EU) 2024/1257. The notion of manipulation strategy shall be distinguished from respectively the notions of 'Euro 7 Base Emission Strategies (BES)' and 'Euro 7 Auxiliary Emission Strategies (AES)' which are defined in respectively Article 3(35) and 3(36) of this Regulation, and which relate to documentation requirements under this Annex.

2. GENERAL REQUIREMENTS – TESTS AND METHODOLOGIES

- 2.1. Referring to the provisions of Articles 3(41) and 3(42) of Regulation (EU) 2024/1257, (i) manipulation devices and manipulation strategies related to physical emissions (exhaust, evaporative or other) and (ii) manipulation devices and manipulation strategies related to data integrity should be distinguished.
- 2.2. When assessing situations that could involve the use of manipulation devices or manipulation strategies for exhaust and evaporative emissions, a broad assessment and interpretation of those situations should be made. Any devices or strategies that reduce the effectiveness of exhaust and non-exhaust emission limits and testing condition requirements under this Regulation, that cause a non-compliant vehicle to appear compliant or that falsify test results, should be considered when determining whether manipulation devices or manipulation strategies exist. Market surveillance authorities should apply dedicated screening tests and enforcement measures to prevent the circumvention of Euro 7 requirements.
- 2.3. The assessment of such situations as part of type-approval should distinguish and identify specific situations where the reduction of effectiveness of exhaust and evaporative emission control¹ is justified by technical reasons and is not due to manipulation. This is particularly relevant in driving conditions that are adjacent to one or more boundary conditions of a regulated emissions test. For such situations, manufacturers shall comply with criteria for the declaration of technically justified emission control strategies that are only active for a specific set of ambient or operating conditions, thereby documenting and explaining the reduction of the effectiveness of emission control that may be observed (for instance, the dosing of reagent may stop at very low temperatures due to physical limitations of hardware). These technically justified emission control strategies shall satisfy strict

¹ Regulation (EU) 2024/1257, Recital (26).

criteria to demonstrate that they are acceptable AES and that therefore they do not constitute a manipulation device or manipulation strategy as defined in Regulation (EU) 2024/1257, without prejudice to the requirements set out in Article 4(2) of the same Regulation. The methodology for the assessment and approval of AES is specified in Appendix 1 to this Annex.

- 2.4. Manufacturers shall ensure that no vehicle is equipped with manipulation devices or strategies related to data integrity as defined in paragraphs 41 and 42 in Article 3 of Regulation (EU) 2024/1257.
- 2.5. Manufacturers shall not introduce software or calibration updates that manipulate data related to sensors, fuel or electric energy consumption, electric range or battery durability, either before or after the placing in the market.
- 2.6. Manufacturers shall disclose any software and calibration updates affecting the integrity of data related to sensors, fuel or electric energy consumption, electric range or battery durability to the granting type-approval authority.

3. TECHNICAL REQUIREMENTS - DOCUMENTATION

- 3.1. Manufacturers shall document Euro 7 Auxiliary Emission Strategies (AES) at type-approval. The procedure of assessing AES ensures the consistent approval of elements of design or actions, in line with Article 14(7) of Regulation (EU) 2024/1257. For the type-approval authorities to be able to assess the proper use of AES, considering the prohibition of manipulation devices and manipulation strategies contained in Article 4(5) of Regulation (EU) 2024/1257, the manufacturer shall provide an extended documentation package, as described in Appendix 1 to this Annex.
- 3.2. The extended documentation shall remain strictly confidential. It may be kept by the approval authority, or, at the discretion of the approval authority, may be retained by the manufacturer. In the case the manufacturer retains the documentation package, that package shall be identified and dated by the approval authority once reviewed and approved. It shall be made available for inspection by the approval authority at the time of approval or at any time during the validity of the approval.
- 3.3. Manufacturers shall also provide to the approval authorities a formal documentation package, as described in Appendix 2 to this Annex, containing information on AES/BES that would allow an independent tester to identify if the emissions measured can be attributed to an AES or BES strategy or are potentially due to a manipulation device or manipulation strategy.
- 3.4. The formal documentation package shall be made available to all type-approval authorities, technical services, market surveillance authorities, recognised third parties and the Commission upon request.
- 3.5. An AES for which the extended documentation package and the formal documentation package have been approved as part of the emission type-approval shall not constitute a manipulation device or manipulation strategy.
- 3.6. Manufacturers shall introduce an indicator (AES flag or timer) to indicate when a vehicle runs in AES mode instead of BES mode. The indicator shall be available via the serial port of the standard diagnostic connector upon request of a generic scan-tool. The AES that is running shall be identifiable via the formal documentation package.

4. ROLES AND RESPONSIBILITIES

- 4.1. This paragraph sets out roles and responsibilities for the actors involved to ensure compliance with regulatory requirements:
 - For vehicle manufacturers: it introduces criteria for the declaration of technically justified emission control strategies that are active for a specific purpose and in response to a specific set of ambient or operating conditions. These emission control strategies shall satisfy strict technical criteria to demonstrate that they do not constitute a manipulation device or manipulation strategy as defined in Regulation (EU) 2024/1257.

- For type-approval authorities: it introduces criteria for the approval of technically justified emission control strategies. The approval of such emission control strategies relies on the concept of ‘Auxiliary Emission Strategies’ (AES), which is adapted from the Euro 6 legal framework. This Annex supports the documentation of AES and clarifies their role in aiding emissions measurement and monitoring through on-board monitoring systems (OBM).
- For market surveillance authorities: it sets a framework for the detection of manipulation devices and manipulation strategies using dedicated screening tests and enforcement measures to prevent the circumvention of Euro 7 requirements.
- For recognised third parties and the European Commission: it sets out roles in the performance of screening tests.

4.2. Roles and responsibilities of vehicle manufacturers

- 4.2.1. Manufacturers shall ensure the absence of manipulation devices and manipulation strategies related to emissions under the scope of this Regulation: manufacturers shall ensure that no vehicle is equipped with manipulation devices or strategies as defined in paragraphs 41 and 42 in Article 3 of Regulation (EU) 2024/1257.
- 4.2.2. Manufacturers shall document software updates that modify the effectiveness of emissions control strategies after type-approval.
- 4.2.3. Manufacturers shall disclose any software updates or calibrations affecting exhaust emissions control systems to the granting type-approval authority.
- 4.2.4. Manufacturers shall document Euro 7 Auxiliary Emission Strategies (AES) as part of type-approval as specified in paragraph 3 ‘Technical requirements – documentation’.
- 4.2.5. In cooperation with the type-approval authorities, the manufacturer shall select up to a maximum of 5 AES that will be monitored by OBM according to Annex I of [Implementing Regulation (EU) 2024/yyy (‘Second Implementing Act’)].

4.3. Roles and responsibilities of type-approval authorities

- 4.3.1. At the request of the manufacturer, the approval authority shall conduct a preliminary assessment of the AES for new vehicle types with regard to emissions. In that case, the relevant documentation shall be provided to the type-approval authority between 2 and 12 months before the start of the type-approval process.
- 4.3.2. The type-approval authority shall make a preliminary assessment based on the extended documentation package, as described in point (b) of Appendix 2 to this Annex, provided by the manufacturer. The approval authority shall make the assessment in accordance with the methodology described in Appendix 1 to this Annex.
- 4.3.3. The preliminary assessment of the AES for new vehicle types with regard to emissions shall remain valid for the purposes of type-approval for a period of 18 months.
- 4.3.4. In cooperation with the manufacturer, the type-approval authority shall select [5] AES that will be monitored by OBM according to Annex I of [Implementing Regulation (EU) 2024/yyy (‘Second Implementing Act’)]. The selection of AES shall prioritise those AES with the greatest expected impact by combination of their effect upon emissions when they are active and the greatest and their expected rate of activation while the vehicles are in use.
- 4.3.5. The extended documentation package shall be identified and dated by the approval authority and kept by that authority for at least 10 years after the approval is granted.
- 4.3.6. The type-approval authority shall evaluate the documentation of software updates that modify the effectiveness of emissions control strategies after type-approval and extend the approval as appropriate as long as the requirements continue to be met.

- 4.3.7. The type-approval authority may test the functionality of the AES flag or timer to indicate when a vehicle runs in AES mode instead of BES mode.
- 4.3.8. Type-approval authorities shall ensure a harmonised assessment of Euro 7 Auxiliary Emission Strategies (AES). A list of AES which were deemed non-acceptable by type-approval authorities shall be compiled yearly by the Forum for Exchange of Information on Enforcement and made available to the public by the Commission at the latest by end of March of the following year, in case there were AES which were deemed non-acceptable.
- 4.4. Roles and responsibilities of market surveillance authorities
- 4.4.1. Market surveillance authorities may conduct screening tests to detect manipulation devices and manipulation strategies related to emissions.
- 4.4.2. Market surveillance authorities should decide case-by-case which methods are best suited, based on an appropriate risk assessment which considers possible non-compliance, the likelihood of its occurrence, and other possible indicators, like the severity of the occurrence.
- 4.4.2. The search for manipulation devices or strategies could include two distinct cases:
- Case A) ‘Boundary detection’: manipulation devices or strategies that use the regulated test boundaries or surrogates thereof as triggers (such as ambient temperature, altitude, trip duration, fuel consumed and driving dynamics ranges) or;
- Case B) ‘Test detection’: manipulation devices or strategies triggered by the presence of test equipment (e.g., backpressure increase at the tailpipe, signals on rear ultrasonic sensors, connection of a data recorder on the OBD port) or the vehicle localization (i.e., anything informing the vehicle that it is being tested on road for tailpipe emissions). These ‘Test detection’ manipulation devices or manipulation strategies apply primarily to on-road tests with PEMS, since vehicles tested in the laboratory usually need to use a special ‘chassis dynamometer mode’ to allow emissions testing without triggering safety devices, etc.
- 4.4.3. For all screening test campaigns, it shall be necessary, as a minimum, to include testing the vehicle with the regulatory methodologies. This is an important step to make sure that the vehicle is free of malfunctioning, poor maintenance or other similar issues, which would unduly increase the level of emissions.
- 4.4.4. To detect the presence of manipulation devices or strategies according to Case A, it is necessary that the vehicles are tested under variations of the regulated testing conditions referred to as ‘modalities’. The set of modalities is not fixed but instead kept open due to the need to detect specific technology behaviours in response to a complex set of parameters and the need to keep an unpredictable character.
- 4.4.5. The result of screening tests to detect manipulation devices and manipulation strategies related to emissions shall be evaluated based on appropriate ‘emission ratios’, defined as the vehicle emissions during the test divided by the applicable emissions limit.
- 4.4.6. Market surveillance authorities shall enforce the prohibition of manipulation devices and manipulation strategies related to emissions. If a manipulation device or strategy related to emissions is identified, market surveillance authorities shall impose corrective measures in accordance with Chapter XI of Regulation (EU) 2018/858.
- 4.4.7. Market surveillance authorities shall ensure a uniform application of criteria for the assessment of screening tests by having regard to the latest version of the relevant non-binding guidance published by the European Commission and to the information available within the Forum for Exchange of Information on Enforcement.
- 4.5. Roles and responsibilities of the Commission and recognised third parties

4.5.1. The Commission and recognised third parties may conduct screening tests to detect manipulation devices and manipulation strategies related to emissions according to paragraph 4.3.1.

Appendix 1

Methodology for the assessment and approval of AES

This appendix provides a structured approach for assessing Euro 7 Auxiliary Emission Strategies (AES).

1. Documentation of AES

Manufacturers shall justify the use of an AES based on one or more of the following criteria:

- (a) The AES is necessary for the safe operation of the vehicle.
- (b) The AES is necessary to avoid sudden and irreparable damage to a powertrain component.
- (c) The AES is only active during engine start.

For each AES, manufacturers shall submit:

- A description of the technical motivation for the AES. This will be substantiated by supporting evidence, such as durability tests or risk analyses, demonstrating why the AES is technically necessary;
- A description of the precise conditions that lead to the activation and de-activation of the AES. This shall include, as appropriate, engine parameters, ambient parameters and deterioration factors;
- An estimation of the emissions and CO₂ impact of the AES when it is active;
- An estimation of the expected rate of activation of the AES while the vehicles are in use.

This information shall be included in the extended documentation package according to Appendix 2.

2. Assessment of AES

Authorities shall approve an AES if it is technically justified by one or more criteria under paragraph 1., provided that the following criteria are also met:

- The technical motivation for the AES is satisfactory and supported by appropriate evidence;
- The conditions that lead to the activation and de-activation of the AES are set according to technical characteristics of the emission control systems concerned and not to the boundary conditions or other conditions covered by a regulatory test.

3. Approval of AES

The type-approval authority shall approve the AES submitted by the manufacturer based on the contents of the extended documentation package.

The extended documentation package shall be limited to 100 pages.

The extended documentation package may be complemented with annexes and other attached documents, containing additional and complementary elements, if necessary. The manufacturer shall send a new consolidated version of the extended documentation package (with tracked changes) to the type-approval authority every time changes are introduced to the AES. The new version of the AES shall be evaluated and approved by the type-approval authority.

The extended documentation package shall include a declaration of the software versions and calibrations used to control these AES/BES, including the appropriate checksums or reference values of these software versions and calibrations, as well as instructions to the authority on how to read the checksums or reference values; the declaration shall be updated and sent to the type-approval authority that holds this extended documentation package each time there is a new software version or calibration that has an impact on the AES/BES. Manufacturers may request to use an alternative to a checksum if it provides an equivalent level of traceability for software version and calibration management.

The extended documentation package shall also include a declaration of the manufacturer on the absence of manipulation devices or manipulation strategies. The approval of the extended documentation package shall not constitute proof of the absence of manipulation devices or manipulation strategies.

Appendix 2

DOCUMENTATION PACKAGES

Formal Documentation Package

The manufacturer may use one formal documentation package for multiple emission type-approvals. The formal documentation package shall include the following information:

Point	Explanation
1. Emission Type-approval Number(s)	List of emission type-approval number(s) covered by this BES-AES declaration: including type-approval reference, software reference, calibration number, checksums of each version and of each relevant Control Unit such as engine and aftertreatment ones
Method of reading of software and calibration version	E.g. scan-tool explanation
2. Base Emission Strategies	
BES x	Description of strategy x
BES y	Description of strategy y
3. Auxiliary Emission Strategies	
Presentation of the AESs	Hierarchical relations among AES: which AES takes precedence if more than one is present
AES x	<ul style="list-style-type: none"> — AES description and justification — Measured and/or modelled parameters for AES activation — Other parameters used to activate the AES — Increase of pollutant and CO₂ emissions during the use of AES compared to BES
AES y	As above

Extended Documentation Package

The extended documentation package shall be structured as follows:

Extended Documentation Package for AES Application No YYY/OEM in accordance with Regulation (EU) 2024/1257

Parts	Paragraph	Point	Explanation
Introduction documents		Introduction letter to TAA	Reference of the document with the version, the date of issuing the document, signature by the relevant person in the manufacturer organisation
		Versioning table	Content of each version modifications: and with part is modified
		Description of the (emission) types concerned	
		Attached documents table	List of all attached documents
		Cross references	(Indicate where to find each requirement of the regulation)
		Declaration on absence of manipulation devices and manipulation strategies	+ signature
Core document	0	Acronyms/abbreviations	
	1	GENERAL DESCRIPTION	
	1.1	Engine presentation general	Description of main characteristics: displacement, aftertreatment,...
	1.2	General architecture system	System bloc diagram: list of sensors and actuators, explanation of engine general functions
	1.3	Reading of software and calibration version	E.g. scan-tool explanation
	2	Base Emission Strategies	
	2.x	BES x	Description of strategy x
	2.y	BES y	Description of strategy y

	3	Auxiliary Emission Strategies	
	3.0	Presentation of the AESs	Hierarchical relations among AES: description and justification (e.g. safety, reliability, etc.)
	3.x	AES x	3.x.1 AES justification 3.x.2 measured and/or modelled parameters for AES characterization 3.x.3 Action mode of AES - Parameters used 3.x.4 Effect of AES on pollutants and CO ₂
	3.y	AES y	3.y.1 3.y.2 etc.
	100-page limit ends here		
	Annex		List of types covered by this BES-AES: including type-approval reference, software reference, calibration number, checksums of each version and of each control unit (engine and/or after-treatment if any)
Attached documents		Technical note for AES justification n° xxx	Risk assessment or justification by testing or example of sudden damage, if any
		Technical note for AES justification n° yyy	
		Test report for specific AES impact quantification	test report of all specific tests done for AES justification, test conditions details, description of the vehicle, date of the tests, emission and/or CO ₂ impact with or without AES activation

ANNEX V

VERIFYING EMISSIONS OF CRANKCASE GASES

(TYPE 3 TEST)

1. INTRODUCTION

- 1.1. The manufacturer shall ensure that the engine's ventilation system does not permit the emission of any crankcase gases into the atmosphere. For the purpose of type-approval the manufacturer shall provide the granting approval authority with a signed declaration of compliance as regards the crankcase emissions requirements of vehicles with positive ignition engines.
- 1.2. A template for the manufacturer's declaration of compliance with the Type 3 requirements is laid down in Appendix 1 of this Annex.
- 1.3. In the case a granting approval authority requests a demonstration test at type-approval or in case of conformity of production testing, in-service conformity or market surveillance checks this Annex describes the procedure for the type 3 test verifying emissions of crankcase gases as described in section 5.3.3. of UN Regulation No 83².

2. GENERAL REQUIREMENTS

- 2.1. The general requirements for conducting the type 3 test shall be those set out in sections 1 and 2 of Annex 6 to UN Regulation No 83, with the exceptions set out in point 2.2 below.
- 2.2. The road load coefficients to be used shall be those for vehicle low (VL). If VL does not exist, then the VH road load shall be used. In that case VH is defined in accordance with point 4.2.1.1.1. of Annex B4 to UN Regulation No 154³. In case the interpolation method is used VL and VH are specified in point 4.2.1.1.2. of Annex B4 to UN Regulation No 154.

3. TECHNICAL REQUIREMENTS

The technical requirements shall be those set out in sections 3 to 6 of Annex 6 to UN Regulation No 83.

² UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

³ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

Appendix 1

MANUFACTURER'S DECLARATION OF COMPLIANCE WITH THE TYPE 3 REQUIREMENTS

(Manufacturer):

(Address of the manufacturer):

Declares that the Vehicle Type(s) and/or listed Family(ies) with regard to emissions below are in compliance with the Type 3 requirements

Vehicle Type(s):

Family(ies):

Other vehicle descriptor(s) ⁽⁴⁾:

In accordance with Annex V to Regulation (EU) 2024/1257:

☐ a closed crankcase system is installed.

☐ the crankcase emissions are routed directly or indirectly to the tailpipe of the vehicle.

☐ the crankcase emissions are routed to any other system that prevents the emissions of crankcase gases to the atmosphere.

Done at [..... Place ⁽⁵⁾]

On

[.....

Date]

[Name and Signature of *Manufacturer's Representative* ⁽¹⁰⁾]

⁴ Delete what is not applicable.

⁵ Established in the Union.

ANNEX VI

DETERMINATION OF EVAPORATIVE EMISSIONS

(TYPE 4 TEST)

1. INTRODUCTION

This Annex provides the method to determine the levels of evaporative emission from light-duty vehicles in a repeatable and reproducible manner designed to be representative of real-world vehicle operation.

2. GENERAL REQUIREMENTS

The general requirements for conducting the type 4 test shall be those set out in paragraph 6.6. of UN Regulation No 154⁶. The limit value shall be that specified in Table 3 of Annex I to Regulation (EU) 2024/1257.

3. TECHNICAL REQUIREMENTS

The technical requirements for conducting the type 4 test shall be those set out in Annex C3 to UN Regulation No 154.

⁶ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

ANNEX VII

VERIFYING THE DURABILITY OF THE EMISSION CONTROL SYSTEMS (TYPE 5 TEST)

1. DECLARATION

- 1.1. A template for the manufacturer's declaration of compliance with the emission durability requirements of the emission control systems is laid down in Appendix 1 of this Annex.
- 1.2. In the case that a test is requested within the main lifetime or the additional lifetime period for the purpose of in-service conformity or market surveillance checks, this test shall follow the requirements for demonstration of compliance with exhaust emission limits for type-approval. In addition, that test shall follow the usual procedures for in-service conformity and market surveillance testing, such as a vehicle inspection before the test.
- 1.3. Deterioration factors shall not be applied when the vehicle mileage is above 15 000 km.
- 1.4. For tests performed in the additional lifetime period, the applicable durability multiplier set out in Table 2 of Annex IV to Regulation (EU) 2024/1257 shall be applied for test evaluation.

Appendix 1

MANUFACTURER'S DECLARATION OF COMPLIANCE WITH THE TYPE 5 REQUIREMENTS FOR TYPE-APPROVAL PURPOSES

(Manufacturer):

(Address of the manufacturer):

Declares that the vehicle Type(s) and/or listed Family(ies) with regard to emissions below are in compliance with the Type 5 requirements regarding durability of exhaust emission control over the main lifetime and the additional lifetime as defined in Annex IV to Regulation (EU) 2024/1257.

Vehicle Type(s):

Family(ies):

Other vehicle descriptor(s) ⁽⁷⁾:

For Type 1 (WLTP) tests conducted for the purpose of type-approval or for conformity of production testing the following (default) deterioration factors shall be used to determine the final pollutant emission results:

Compression-ignition engine

Multiplicative deterioration factors ⁸							
	NO _x	CO	THC	NMHC	HC+NO _x	PM	PN
Multiplicative			-	-			

Positive ignition engine

Multiplicative deterioration factors							
	NO _x	CO	THC	NMHC	HC+NO _x	PM	PN
Multiplicative	1,6	1,5	1,3	1,3	-	1,0	1,0

Done at [..... Place ⁽⁹⁾]

On [..... Date]

..... [Name and signature of Manufacturer's Representative ⁽¹⁰⁾]

⁷ Delete what is not applicable.

⁸ Manufacturers shall declare the deterioration factors rounded off to one decimal.

⁹ Established in the Union.

¹⁰ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

ANNEX VIII

VERIFYING THE AVERAGE EMISSIONS AT LOW AMBIENT TEMPERATURES (TYPE 6 TEST)

1. INTRODUCTION
 - 1.1. This Annex describes the equipment required and the procedure for the Type 6 test in order to verify the emissions at cold temperatures.
2. GENERAL REQUIREMENTS
 - 2.1. The general requirements for the Type 6 test are those set out in section 5.3.5. of UN Regulation No 83¹¹.
3. TECHNICAL REQUIREMENTS
 - 3.1. The technical requirements and specifications are those set out in section 2 to 6 of Annex 8 to UN Regulation No 83 with the exception specified in section 3.2 below.
 - 3.2. The road load coefficients to be used shall be those for vehicle low (VL). If VL does not exist then the vehicle high (VH) road load shall be used. In that case VH shall be specified in accordance with paragraph 4.2.1.1.1. of Annex B4 to UN Regulation No 154¹². In case the interpolation method is used VL and VH shall be specified in accordance with paragraph 4.2.1.1.2. of Annex B4 to UN Regulation No 154. The dynamometer shall be adjusted to simulate the operation of a vehicle on the road at – 7 °C. Such adjustment may be based on a determination of the road load force profile at – 7 °C. Alternatively, the driving resistance determined may be adjusted for a 10% decrease of the coast-down time. The technical service may approve the use of other methods for determining the driving resistance.

¹¹ UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

¹² UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

ANNEX IX

SPECIFICATIONS OF REFERENCE FUELS

1. REFERENCE FUELS
 - 1.1. The specifications for the reference fuels to be used shall be those set out in Annex B3 to UN Regulation No 154 ⁽¹³⁾.
2. REFERENCE FUELS FOR TESTING EMISSIONS AT LOW AMBIENT TEMPERATURES – TYPE 6 TEST
 - 2.1. The specifications for the reference fuels to be used in the Type 6 test shall be those set out in Annex 10 and Annex 10a to UN Regulation 83 ⁽¹⁴⁾.

¹³ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

¹⁴ UN Regulation No 83 - Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements (OJ L, 2024/1312, 27.6.2024, ELI: <http://data.europa.eu/eli/reg/2024/1312/oj>).

ANNEX X

GEAR SHIFT INDICATOR (GSI)

1. INTRODUCTION

- 1.1. This Annex clarifies some of the requirements related to pollutant emissions in the real world, including when following the gear shift indicator (GSI).

2. GENERAL REQUIREMENTS

- 2.1. Regulation (EU) 2019/2144 ⁽¹⁵⁾ regulates gear shift indicators (GSI), whose main purpose is to minimise fuel consumption of a vehicle when a driver follows its indications.
- 2.2. The technical specifications for gear shift indicators set out in PART 2 of Annex IX to Regulation (EU) 2021/535 ⁽¹⁶⁾ shall apply.

3. CLARIFICATION OF THE REQUIREMENTS

- 3.1. The technical specifications for gear shift indicators set out in PART 2 of Annex IX to Regulation (EU) 2021/535 shall apply to M₁ vehicles equipped with a manual gearbox which can only be operated in manual mode.
- 3.2. Section 5.2 PART 2 of Annex IX to Regulation (EU) 2021/535 of the functional requirements for Gear Shift Indicators (GSI) shall be understood to serve as a clarification with non-exhaustive examples.

Regarding the provision that the GSI strategy shall facilitate the timely functioning of the pollution control devices, minimising their heat up time, ‘timely functioning of the pollution control devices’ shall be understood as ensuring compliance to the pollutant emission requirements laid down in this Regulation.

¹⁵ Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council (OJ L 325, 16.12.2019, p. 1, ELI: <http://data.europa.eu/eli/reg/2019/2144/oj>).

¹⁶ Commission Implementing Regulation (EU) 2021/535 of 31 March 2021 laying down rules for the application of Regulation (EU) 2019/2144 of the European Parliament and of the Council as regards uniform procedures and technical specifications for the type-approval of vehicles, and of systems, components and separate technical units intended for such vehicles, as regards their general construction characteristics and safety (OJ L 117, 6.4.2021, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2021/535/oj).

ANNEX XI

ON BOARD DIAGNOSTICS (OBD) FOR MOTOR VEHICLES

1. INTRODUCTION

- 1.1. This Annex sets out the functional aspects of on-board diagnostic (OBD) systems for the control of emissions from motor vehicles

2. GENERAL REQUIREMENTS

- 2.1. The requirements for OBD systems set out in paragraph 6.8. of UN Regulation No 154 ⁽¹⁷⁾ shall apply for the purposes of this Annex.
- 2.2. A template for the manufacturer's declaration of compliance with the OBD requirements for the purposes of type-approval is laid down in Appendix 1 of this Annex.

3. ADMINISTRATIVE PROVISIONS FOR DEFICIENCIES OF OBD SYSTEMS

- 3.1. The administrative provisions for deficiencies of OBD systems as set out in Article 8(3) shall be those specified in Section 4 of Annex C5 to UN Regulation No 154 with the following exceptions.
- 3.2. Reference to 'OBD thresholds' in paragraph 4.2.2. of Annex C5 to UN Regulation No 154 shall be understood as being reference to the OBD thresholds in Table 4A of paragraph 6.8.2. of UN Regulation No 154.
- 3.3. The second sub-paragraph of paragraph 4.6. of Annex C5 to UN Regulation No 154 shall be understood as being as follows:
- 'The type-approval authority shall notify its decision in granting a deficiency request in accordance with Article 8(3).'

4. TECHNICAL REQUIREMENTS

- 4.1. The definitions, requirements and tests for OBD systems set out in paragraphs 3.10, 4, 5.10, 6.8 and Annex C5 to UN Regulation No 154 shall apply for the purposes of this Annex.
- 4.2. References to the target useful life should be understood as references to the additional lifetime, as set out in Table 1 of Annex IV to Regulation (EU) 2024/1257.

¹⁷ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

Appendix 1

MANUFACTURER'S DECLARATION OF COMPLIANCE WITH THE OBD REQUIREMENTS FOR THE PURPOSES OF TYPE-APPROVAL

(Manufacturer):

(Address of the manufacturer):

Declares that:

- (1) For the Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions ⁽¹⁸⁾ listed in Annex I to this declaration are in compliance with the provisions of Regulation (EU) 2024/1257 and its implementing legislation relating to the OBD system;
- (2) The OBD information documentation in Annex II to this declaration describing the detailed technical criteria attached to this declaration is correct and complete for all vehicles to which this declaration applies;
- (3) Annex III to this declaration lists any exemptions and/or deficiencies applicable to these vehicles related to the OBD provisions laid down in this Regulation.

Done at [..... Place ⁽¹⁹⁾]

On [..... Date]

[Name and signature of Manufacturer's Representative ⁽²⁰⁾]

Attachments

Annex I: List of Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions to which this declaration applies

Annex II: OBD Documentation package

Annex III: list of any exemptions and/or deficiencies applicable to these vehicles related to the OBD provisions laid down in this Regulation.

¹⁸ Delete what is not applicable.

¹⁹ Established in the Union.

²⁰ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

ANNEX XII

TYPE-APPROVAL OF VEHICLES FITTED WITH ECO-INNOVATIONS AND DETERMINATION OF CO₂ EMISSIONS AND FUEL CONSUMPTION FROM VEHICLES SUBMITTED TO MULTI-STAGE TYPE-APPROVAL OR INDIVIDUAL VEHICLE APPROVAL

1. TYPE-APPROVAL OF VEHICLES FITTED WITH ECO-INNOVATIONS

- 1.1. In accordance with Article 7 of Regulation (EU) 2023/2767, a manufacturer wishing to benefit from a reduction of its average specific CO₂ emissions by means of the CO₂ savings from an eco-innovation, shall apply to an approval authority for an EU emission type-approval certificate of the vehicle fitted with the eco-innovation.
- 1.2. The type-approval authority shall determine the CO₂ savings of the eco-innovation in accordance with Article 30 of Regulation (EU) 2018/858, using a methodology set out in the Commission Implementing Decision on the approval of that innovative technology as an eco-innovation, in accordance with Article 6 of Regulation (EU) 2023/2767.

2. DETERMINATION OF CO₂ EMISSIONS AND FUEL CONSUMPTION FROM VEHICLES SUBMITTED TO MULTI-STAGE TYPE- APPROVAL OR INDIVIDUAL VEHICLE APPROVAL

- 2.1. In the case of a multi-stage type-approval, the procedures of Annex XXI shall apply for the purpose of determining the CO₂ emissions and fuel consumption of the completed vehicle.
- 2.2. By way of derogation from paragraph 2.1, at the request of the final-stage manufacturer, where the base vehicle is incomplete, and if the base vehicle manufacturer has made available a calculation tool to establish the final fuel consumption and CO₂ values as specified in Annex B7 to UN Regulation No 154 on the basis of the parameters of completed vehicles, the CO₂ emissions and fuel consumption of the completed vehicle shall be calculated by the final-stage manufacturer on the basis of the parameters of the completed vehicle as specified in paragraph 3.2.4. of Annex B7 to UN Regulation No 154.

For that purpose, the base vehicle manufacturer shall establish a road load matrix family, as defined in paragraph 6.3.4. of UN Regulation No 154, based on the parameters of a representative multi-stage vehicle in accordance with paragraph 4.2.1.4. of Annex B4 to UN Regulation No 154.

The base vehicle manufacturer shall calculate the road load coefficients of vehicle HM and LM of the road load matrix family as set out in paragraph 5 of Annex B4 to UN Regulation No 154 and shall determine the CO₂ emission and fuel consumption of those vehicles in a Type 1 test. The calculation of the road load and running resistance for an individual multi-stage vehicle shall be performed by the completed vehicle manufacturer in accordance with paragraph 5.1. of Annex B4 to UN Regulation No 154. These values shall be fed into the calculation tool to determine the CO₂ emissions and fuel consumption of the completed vehicle.

- 2.3. By way of derogation from paragraph 2.1, where the base vehicle is a complete vehicle, the final-stage manufacturer shall determine the CO₂ emissions of the completed vehicle on the basis of information from the base vehicle manufacturer. The CO₂ emissions shall be determined in accordance with the CO₂ interpolation method using the appropriate data from the completed vehicle or calculated on the basis of the parameters of the completed vehicle as specified in paragraph 3.2.4. of Annex B7 to UN Regulation No 154 and using the calculation tool referred to in point 2.2 if it is supplied by the base vehicle manufacturer. If the CO₂ interpolation is not possible or the tool is not available, subject to the agreement of the approval authority, the CO₂ emissions of the completed vehicle shall be the CO₂ emissions of Vehicle High from the base vehicle.
- 2.4. The final-stage manufacturer shall include in the certificate of conformity the information of the completed vehicle and the information of the base vehicle in accordance with Regulation (EU) 2020/683.

In the case of multi-stage vehicles submitted to individual vehicle approval, the individual approval certificate shall include the following information:

- (a) the CO₂ emissions measured in accordance with the methodology set out in point 2.1 or, where applicable, 2.2 or 2.3;

- (b) the mass in running order of the completed vehicle;
- (c) the type, variant and version of the base vehicle;
- (d) the type-approval number of the base vehicle;
- (e) the name and address of the base vehicle manufacturer;
- (f) the mass in running order of the base vehicle.



EUROPEAN
COMMISSION

Brussels, XXX
[...] (2025) XXX draft

ANNEXES 13 to 22

ANNEXES

to the

Commission Implementing Regulation

**laying down rules, procedures and testing methodologies for the application of
Regulation (EU) 2024/1257 as regards exhaust and evaporative emission type-approval
of vehicles of categories M1 and N1**

ANNEX XIII

EMISSION TYPE-APPROVAL OF REPLACEMENT POLLUTION CONTROL DEVICES AS SEPARATE TECHNICAL UNIT

1. INTRODUCTION

- 1.1. This Annex contains additional requirement for the type-approval as separate technical units of pollution control devices.

2. GENERAL REQUIREMENTS

2.1. Marking

Original replacement pollution control devices shall bear at least the following identifications:

- (a) the vehicle manufacturer's name or trade mark;
- (b) the make and identifying part number of the original replacement pollution control device as recorded in the information mentioned in point 2.3.

2.2. Documentation

Original replacement pollution control devices shall be accompanied by the following information:

- (a) the vehicle manufacturer's name or trade mark;
- (b) the make and identifying part number of the original replacement pollution control device as recorded in the information mentioned in point 2.3;
- (c) the vehicles for which the original replacement pollution control device is of a type covered by point 2.3 of the Addendum to Appendix 4 to Annex I, including, where applicable, a marking to identify if the original replacement pollution control device is suitable for fitting to a vehicle that is equipped with an on-board diagnostic (OBD) system;
- (d) installation instructions, where necessary.

This information shall be available in the product catalogue distributed to points of sale by the vehicle manufacturer.

- 2.3. The vehicle manufacturer shall provide to the technical service and/or approval authority the necessary information in electronic format which makes the link between the relevant part numbers and the type-approval documentation.

This information shall contain the following:

- (a) make(s) and type(s) of vehicle,
- (b) make(s) and type(s) of original replacement pollution control device,
- (c) part number(s) of original replacement pollution control device,
- (d) type-approval number of the relevant vehicle type(s) with regard to emissions.

3. EU SEPARATE TECHNICAL UNIT TYPE-APPROVAL MARK

- 3.1. Every replacement pollution control device conforming to the type approved under this Regulation as a separate technical unit shall bear an EU type-approval

mark.

- 3.2. This mark shall consist of a rectangle surrounding the lower-case letter ‘e’ followed by the distinguishing number of the Member State which has granted the EU type-approval in accordance with the numbering system set out in Regulation (EU) 2020/683 ⁽¹⁾.

The EU type-approval mark shall also include in the vicinity of the rectangle the ‘base approval number’ contained in section 4 of the type-approval number referred to in Annex IV to Regulation (EU) 2020/683, preceded by the two figures indicating the sequence number assigned to the latest major technical amendment to this Regulation on the date EU type-approval for a separate technical unit was granted. For this Regulation, the sequence number is 00.

- 3.3. The EU type-approval mark shall be affixed to the replacement pollution control device in such a way as to be clearly legible and indelible. It shall, wherever possible, be visible when the replacement pollution control device is installed on the vehicle.
- 3.4. Appendix 3 to this Annex gives an example of the EU type-approval mark.

4. TECHNICAL REQUIREMENTS

- 4.1. The requirements for the type-approval of replacement pollution control devices shall be those of Section 5 of UN Regulation No 103 ⁽²⁾ with the exceptions set out in sections 4.1.1 to 4.1.4.

4.1.1. Reference to the ‘test cycle’ in Section 5 of UN Regulation No 103 shall be understood as being the same Type 1 test and Type 1 test cycle as used for the original type-approval of the vehicle.

4.1.2. The terms ‘catalytic converter’ and ‘converter’ used in section 5 of UN Regulation No 103 shall be understood to mean ‘pollution control device’

4.1.3. The regulated pollutants referred to throughout section 5.2.3 of UN Regulation No 103 shall be replaced by all the pollutants specified in Annex 1, Table 1 of Regulation (EU) 2024/1257 for replacement pollution control devices intended to be fitted to vehicles type approved to Regulation (EU) 2024/1257.

4.1.4. For replacement pollution control devices intended to be fitted to vehicles type approved to Regulation (EU) 2024/1257, the durability requirements and associated deterioration factors specified in section 5 of UN Regulation No 103, shall refer to those specified in Annex VII to this Regulation.

4.2. For vehicles with positive-ignition engines, if the NMHC emissions measured during the demonstration test of a new original equipment catalytic converter, under paragraph 5.2.1. of UN Regulation No 103, are higher than the values measured during the type-approval of the vehicle, the difference shall be added to

¹ Commission Implementing Regulation (EU) 2020/683 of 15 April 2020 implementing Regulation (EU) 2018/858 of the European Parliament and of the Council with regards to the administrative requirements for the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (OJ L 163, 26.5.2020, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2020/683/oj).

² Regulation No 103 of the Economic Commission for Europe of the United Nations (UNECE) — Uniform provisions concerning the approval of replacement pollution control devices for power-driven vehicles [2017/1446] (OJ L 207, 10.8.2017, p. 30, ELI: <http://data.europa.eu/eli/reg/2017/1446/oj>).

the OBD thresholds. The OBD thresholds are specified in Table 4A of paragraph 6.8.2. of UN Regulation No 154.

4.3. The revised OBD thresholds will apply during the tests of OBD compatibility set out in paragraphs 5.5 to 5.5.5 of UN/ECE Regulation No 103. In particular, when the exceedance allowed in paragraph 1 of Appendix 1 to Annex C5 to UN Regulation No 154 is applied.

4.4. Requirements for replacement periodically regenerating systems

4.4.1. Requirements regarding emissions

4.4.1.1. The vehicle(s) indicated in Articles 13(3), (4) and (5), equipped with a replacement periodically regenerating system of the type for which approval is requested, shall be subject to the tests described in Appendix 1 to Annex B6 to UN Regulation No 154, in order to compare its performance with the same vehicle equipped with the original periodically regenerating system.

4.4.1.2. Reference to the 'Type 1 test' and 'Type 1 test cycle' in Appendix 1 to Annex B6 to UN Regulation No 154 and the 'test cycle' in Section 5 of UN Regulation No 103 shall be understood as being the same Type 1 test and Type 1 test cycle as used for the original type-approval of the vehicle.

4.4.2. Determination of the basis for comparison

4.4.2.1. The vehicle shall be fitted with a new original periodically regenerating system. The emissions performance of this system shall be determined following the test procedure set out in Appendix 1 to Annex B6 to UN Regulation No 154.

4.4.2.1.1. Reference to the 'Type 1 test' and 'Type 1 test cycle' in Appendix 1 to Annex B6 to UN Regulation No 154 and the 'test cycle' in Section 5 of UN Regulation No 103 shall be understood as being the same Type 1 test and Type 1 test cycle as used for the original type-approval of the vehicle.

4.4.2.2. Upon request of the applicant for the approval of the replacement component, the approval authority shall make available on a non- discriminatory basis, the information referred to in point 3.2.12.2.10.2. of the information document contained in Annex A1 of UN Regulation No 154 for each vehicle tested.

4.4.3. Exhaust gas test with a replacement periodically regeneration system

4.4.3.1. The original equipment periodically regenerating system of the test vehicle(s) shall be replaced by the replacement periodically regenerating system. The emissions performance of this system shall be determined following the test procedure set out in Appendix 1 to Annex B6 to UN Regulation No 154.

4.4.3.1.1. Reference to the 'Type 1 test' and 'Type 1 test cycle' in Appendix 1 to Annex B6 to UN Regulation No 154 and the 'test cycle' in Section 5 of UN Regulation No 103 shall be understood as being the same Type 1 test and Type 1 test cycle as used for the original type-approval of the vehicle.

4.4.3.2. To determine the D-factor of the replacement periodically regenerating system, any of the engine test bench methods referred to in Appendix 1 to Annex B6 to UN Regulation No 154 may be used.

4.4.4. Other requirements

The requirements provided in paragraphs 5.2.3, 5.3, 5.4 and 5.5 of UN Regulation No 103 shall apply to replacement periodically regenerating systems. In these paragraphs the words 'catalytic converter' shall be understood to mean

‘periodically regenerating system’. The exceptions provided in the paragraphs in section 4.1 of this Annex shall also apply to periodically regenerating systems.

5. DOCUMENTATION

5.1. Each replacement pollution control device shall be clearly and indelibly marked with the manufacturer’s name or trade mark and accompanied by the following information:

- (a) the vehicles (including year of manufacture) for which the replacement pollution control device is approved, including, where applicable, a marking to identify if the replacement pollution control device is suitable for fitting to a vehicle that is equipped with an on-board diagnostic (OBD) system;
- (b) installation instructions, where necessary.

The information shall be available in the product catalogue distributed to points of sale by the manufacturer of replacement pollution control devices.

6. CONFORMITY OF PRODUCTION

6.1. Measures to ensure the conformity of production shall be taken in accordance with the provisions laid down in Article 31 of Regulation (EU) 2018/858.

6.2. Special provisions

6.2.1. The checks referred to in point 3 of Annex IV to Regulation (EU) 2018/858 shall include compliance with the characteristics as defined under Article 3(5) of this Regulation.

6.2.2. For the application of Article 31(3) of Regulation (EU) 2018/858, the tests described in section 4.4.1 of this Annex and section 5.2 of UN/ECE Regulation No 103 (requirements regarding emissions) may be carried out. In this case, the holder of the approval may request, as an alternative, to use as a basis for comparison not the original equipment pollution control device, but the replacement pollution control device which was used during the type-approval tests (or another sample that has been proven to conform to the approved type). Emissions values measured with the sample under verification shall then on average not exceed by more than 15 % the mean values measured with the sample used for reference.

Appendix 1

MODEL

Information document No ...

relating to the EU type-approval of replacement pollution control devices

The following information, if applicable, shall be supplied in triplicate and include a list of contents. Any drawings shall be supplied in appropriate scale and sufficient detail on size A4 or on a folder of A4 format. Photographs, if any, shall show sufficient detail.

If the systems, components or separate technical units have electronic controls, information concerning their performance shall be supplied.

0. GENERAL

0.1. Make (trade name of manufacturer): ...

0.2. Type: ...

0.2.1. Commercial name(s), if available: ...

0.5. Name and address of manufacturer: ...

Name and address of authorised representative, if any: ...

0.7. In the case of components and separate technical units, location and method of affixing of the EU approval mark: ...

0.8. Address(es) of assembly plant(s): ...

1. DESCRIPTION OF THE DEVICE

1.1. Make and type of the replacement pollution control device: ...

1.2. Drawings of the replacement pollution control device, identifying in particular all the characteristics referred to under Article 3(5) of this Regulation:

1.3. Description of the vehicle type or types with regard to emissions for which the replacement pollution control device is intended: ...

1.3.1. Number(s) and/or symbol(s) characterising the engine and vehicle type(s) with regard to emissions: ...

1.3.2. Is the replacement pollution control device intended to be compatible with OBD requirements (Yes/No)³

1.4. Description and drawings showing the position of the replacement pollution control device relative to the engine exhaust manifold(s): ...

³

Delete where not applicable

Appendix 2

MODEL EU TYPE-APPROVAL CERTIFICATE

(Maximum format: A4 (210 mm × 297 mm))

EU TYPE-APPROVAL CERTIFICATE

Stamp of administration

Communication concerning the:

- EU type-approval⁴, ...,
- extension of EU type-approval⁵, ...,
- refusal of EU type-approval⁶, ...,
- withdrawal of EU type-approval⁷, ...,

of a type of component/separate technical unit⁸

with regard to Regulation (EU) 2024/1257, as implemented by Regulation (EU) No 2025/xxx.

Regulation (EU) 2024/1257 or Regulation (EU) No 2025/xxx as last amended by ...

EU type-approval number: ...

Reason for extension: ...

SECTION I

0.1. Make (trade name of manufacturer): ...

0.2. Type: ...

0.3. Means of identification of type if marked on the component/separate technical unit⁹: ...

0.3.1. Location of that marking: ...

0.5. Name and address of manufacturer: ...

0.7. In the case of components and separate technical units, location and method of affixing of the EU approval mark: ...

0.8. Name and address(es) of assembly plant(s): ...

0.9. Name and address of manufacturer's representative (if any): ...

SECTION II

1. Additional information

1.1. Make and type of the replacement pollution control device: ...

⁴ Delete where not applicable

⁵ Delete where not applicable

⁶ Delete where not applicable

⁷ Delete where not applicable

⁸ Delete where not applicable

⁹ If the means of identification of type contains characters not relevant to describe the vehicle, component or separate technical unit types covered by this type-approval certificate such characters shall be represented in the document by the symbol: '?' (e.g. ABC??123??).

1.2. Vehicle type(s) with regard to emissions for which the pollution control device type qualifies as replacement part: ...

1.3. Type(s) of vehicles) on which the replacement pollution control device has been tested: ...

1.3.1. Has the replacement pollution control device demonstrated compatibility with OBD requirements (yes/no)¹⁰: ...

2. Technical service responsible for carrying out the tests: ...

3. Date of test report: ...

4. Number of test report: ...

5. Remarks: ...

6. Place: ...

7. Date: ...

8. Signature: ...

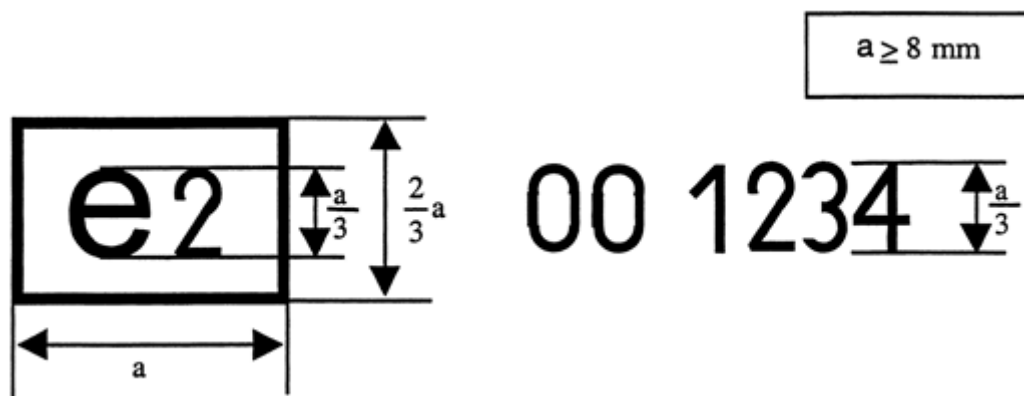
<i>Attachments:</i>	Information package.
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¹⁰ Delete where not applicable

Appendix 3

Model of emission type-approval marks

(see point 3.2 of this Annex)



The above approval mark affixed to a component of a replacement pollution control device shows that the type concerned has been approved in France (e 2), pursuant to this Regulation. The first two digits of the approval number (00) indicate that this part was approved according to this Regulation. The following four digits (1234) are those allocated by the approval authority to the replacement pollution control device as the base approval number.

ANNEX XIV

ANTI-TAMPERING, SECURITY AND CYBERSECURITY

1. INTRODUCTION

This Annex lays down measures regarding the type-approval of anti-tampering, security and cybersecurity systems.

2. DEFINITIONS

For the purposes of this Annex, the definitions in UN Regulation No 155¹ shall apply.

‘Attacks’ shall be understood as comprising tampering attempts, attempts to circumvent security and cyber-attacks.

3. REQUIREMENTS FOR TYPE-APPROVAL

3.1. Responsibilities of manufacturers

It is the responsibility of the manufacturer that the vehicle type (with regard to emissions) is equipped with sufficient anti-tampering, security and cybersecurity measures to make it resistant against tampering, cybersecurity and security threats arising in all phases of its life-cycle.

To fulfil this responsibility, the vulnerabilities that may lead to tampering shall be minimised to the fullest extent possible, based on the best available knowledge at the time of type-approval, for all systems listed in Article 4(7) of Regulation (EU) 2024/1257.

This shall be deemed to be complied with when:

a) the vehicle type with regard to emissions satisfies the requirements of UN Regulation No 155²

and

b) the manufacturer’s vulnerability/threat analysis and risk assessment consider, where applicable, the aims of Regulation (EU) 2024/1257 and in particular:

i) for fuel and reagent injection system, engine and engine control units and pollution control systems, the manufacturer’s vulnerability/threat analysis and risk assessment

¹ UN Regulation No 155 – Uniform provisions concerning the approval of vehicles with regards to cyber security and cyber security management system (OJ L, 2025/5, 10.1.2025, ELI: <http://data.europa.eu/eli/reg/2025/5/oj>).

² Unless not required in accordance with the Small Series Scheme I under Annex II, Part I, Appendix 1 to Regulation (EU) 2018/858.

considers at least the high-level vulnerabilities/threats, examples of vulnerabilities or attack methods, and examples of mitigations of Table 4.1 of Appendix I to this Annex.

ii) for the OBM system, OBD system and OBFCM device the manufacturer's vulnerability/threat analysis and risk assessment considers at least the high-level vulnerabilities/threats, examples of vulnerability or attack method, and examples of mitigations of Table 4.2 of Appendix I to this Annex.

iii) for the odometer, the total distance indicated and total distance values are protected according to UN Regulation No 39³.

iv) for traction batteries and related management systems, electric motor and related control units and environmental vehicle passport, the manufacturer's vulnerability/threat analysis and risk assessment considers at least the high-level vulnerabilities/threats, examples of vulnerabilities or attack methods, and examples of mitigations of Table 4.3 of Appendix 1 to this Annex.

Without prejudice to requirements of paragraph 7.2.2.2(g) of UN Regulation No 155, the manufacturer shall monitor for, detect, respond to and inform the approval authority on evidences of successful attacks on any of the systems listed in Article 4(7) of Regulation (EU) 2024/1257.

3.2. Responsibilities of approval authorities

Without prejudice to the requirements of paragraph 5.1.1. of UN Regulation No 155, type-approval authorities shall verify whether the vulnerability/threat analysis and risk assessment conducted by the manufacturer is appropriate and sufficient. This verification shall ensure that the vulnerabilities and threats of the tables in Appendix 1 have been appropriately managed by the manufacturer. The examples in these tables shall be used as reference.

The type-approval authority may require additional documentation to verify that the proposed mitigation actions are correctly implemented.

Type-approval authorities are encouraged to exchange best practices and experiences within the framework of the Forum for Exchange of Information on Enforcement as established in Regulation (EU) 2018/858.

3.3. Responsibilities of market surveillance authorities

Following the requirements in Article 8 to Regulation (EU) 2018/858⁴, the market surveillance authorities shall carry out regular tests to verify whether anti-tampering,

³ Regulation No 39 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of vehicles with regard to the speedometer and odometer equipment including its installation [2018/1857] (OJ L 302, 28.11.2018, p. 106, ELI: <http://data.europa.eu/eli/reg/2018/1857/oj>).

security and cybersecurity measures are sufficient. Market surveillance authorities shall be responsible for vehicle selection, application of testing methods, follow-up activities, reporting and corrective or restrictive measures.

3.3.1. Vehicle selection for market surveillance

When carrying out market surveillance tests, the market surveillance authorities shall select the vehicle types with regards to emissions to be tested based on a risk assessment. Vehicle types (with regards to emissions) deemed to pose a greater risk according to the risk assessment shall be prioritised for testing according to paragraph 3.3.2.

The risk assessment shall consider the following aspects:

- (a) Evidence that effective tampering products are widely available on the market for use on certain vehicle types with regard to emissions;
- (b) Evidence of known vulnerabilities affecting certain vehicle types with regard to emissions;
- (c) Evidence about the prevalence of tampering for certain vehicle types with regard to emissions (including, among others, OBM data submitted by vehicle manufacturers);
- (d) The number of vehicles in circulation belonging to certain vehicle types with regards to emissions;
- (e) Other relevant information, including test results of recognised third parties and information exchanged in the Forum for Exchange of Information on Enforcement, as established in Regulation (EU) 2018/858.

3.3.2. Testing methods

Market surveillance authorities may employ any test method to establish whether vehicles belonging to a certain vehicle type with regard to emissions are sufficiently protected against attacks which could affect the proper operation of systems listed in Article 4(7) of Regulation (EU) 2024/1257. Market surveillance authorities are encouraged to exchange best practices and experiences within the framework of the Forum for Exchange of Information on Enforcement as established in Regulation (EU) 2018/858.

The good state of each test vehicle shall be verified before conducting the tests, ensuring in particular the proper operation of systems listed in Article 4(7) of Regulation (EU) 2024/1257 and that they have not been subject to attacks in the scope of the tests. The verification shall ensure that no relevant fault code is stored nor any relevant warning light is on, that none of the pollutant monitoring statuses is in ‘Error’

⁴ Regulation (EU) 2018/858 of the European Parliament and of the Council of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (OJ L 151, 14.6.2018, p. 1, ELI: <http://data.europa.eu/eli/reg/2018/858/oj>).

and that the tampering detection level [Reference to Second Implementing Act, Annex I] reported by the OBM is ‘Normal’.

This verification shall also include, where appropriate, the performance of an ex-ante Type 1 [Reference to MIA or UNR 154] or RDE test [Reference to MIA or UNR 168]. The attack test shall not proceed unless the emission results of the ex-ante test fulfil the applicable emission limits.

The tests conducted by market surveillance authorities shall aim to reproduce the attacks likely to be experienced by certain vehicle types with regard to emissions in the field due to a high benefit-cost ratio. These may include attempts to tamper with vehicles by exploiting existing tampering, security and cybersecurity vulnerabilities, or by installing tampering products that are available on the market. The selection of attacks shall be based on the risk assessment described in paragraph 3.3.1.

3.3.3. *Test evaluation*

The market surveillance authority shall determine the outcome of the test by evaluating the effects of the attack on exhaust emissions or on the integrity of the data used by the systems listed in Article 4(7) of Regulation (EU) 2024/1257, taking account of the response of the vehicle to the attacks. The authority shall come to a ‘pass’, ‘follow-up’ or ‘fail’ decision on one or both aspects, as appropriate according to the nature of the attack.

A ‘pass’ outcome requires no further action.

A ‘follow-up’ outcome shall be followed by the activities described in paragraph 3.3.4.

A ‘fail’ outcome shall be followed by the activities described in paragraph 3.3.5.

Following the attack, the market surveillance authority may condition the vehicle by driving it over a certain distance, over multiple trips, or in other conditions that are deemed appropriate for the attack to be detected.

3.3.3.1. Evaluation of effects on exhaust emissions (pollutants monitored by OBM)

After the attack and optional conditioning, an ex-post Type 1 or RDE test shall be performed. The ex-ante and ex-post tests shall be of the same type. If two RDE tests are driven, the tests shall be performed over the same route, with similar driving behaviour, and under comparable environmental and traffic conditions.

Following the ex-post emissions test, the test outcome shall be determined for each pollutant monitored by the OBM system. The test outcome shall be considered a ‘pass’ if one of the following is observed:

- (a) Exhaust emissions do not increase substantially from those of the ex-ante emissions test. A substantial increase shall be understood as an exhaust emissions increase by more than [100%] of the applicable emission limit and where emissions of the ex-post test are above the applicable OBD threshold.

- (b) Exhaust emissions are substantially increased to a level of up to 2,5 times the applicable emission limit, while the tampering detection level is set to 'Level 1' or higher.
- (c) Exhaust emissions are substantially increased to a level equal or higher than 2,5 times the applicable emission limit, while the tampering detection level is set to 'Level 2' and the corresponding OBM status has transitioned to 'Error'.

If the test outcome is not a direct 'pass', the vehicle may be conditioned further to allow more evaluation time for the OBM system to transition the pollutant monitoring statuses and tampering detection level.

When, after further conditioning, the monitoring statuses or tampering detection level do not transition in such a way that they lead to a 'pass' outcome, the test outcome shall be considered a 'follow-up' if one of the following outcomes is observed:

- (a) Exhaust emissions are substantially increased to a level of up to 2,5 times the applicable emission limit, while the tampering detection level is set to 'Level 0'.
- (b) Exhaust emissions are substantially increased to a level equal or higher than 2,5 times the applicable emission limit, while the corresponding OBM status has transitioned to 'Error' and the tampering detection level is set to 'Level 1' or lower.

If the outcome is neither a 'pass' nor a 'follow-up', it shall be considered as a 'fail'.

Vehicles not equipped with an OBM system shall be excluded from the evaluation of the effects on exhaust emissions according to this paragraph.

3.3.3.2. Evaluation of effects on exhaust emissions (pollutants not monitored by OBM)

After the attack and optional conditioning, an ex-post Type 1 or RDE test shall be performed. The ex-ante and ex-post tests shall be of the same type. If two RDE tests are driven, the tests shall be performed over the same route, with similar driving behaviour, and under comparable environmental and traffic conditions.

Following the ex-post emissions test, for all pollutants not monitored by the OBM system, the test outcome shall be considered a 'follow-up' when the pollutants are substantially increased to a level above the applicable OBD threshold values as specified in paragraph 6.8.2 of UN Regulation No 154 while the malfunction indicator (MI) is not activated. In any other case, it shall be considered a 'pass'.

If the test outcome is not a direct 'pass', the vehicle may be conditioned further to allow more evaluation time for the OBD system to activate the malfunction indicator.

3.3.3.3. Evaluation of effects on the integrity of data

Following the attack and optional conditioning, the outcome shall be considered a ‘pass’ when the attack is unsuccessful in modifying data of the systems listed in Article 4(7) of Regulation (EU) 2024/1257.

If the attack is successful in modifying data of the systems listed in Article 4(7) of Regulation (EU) 2024/1257, the outcome shall be evaluated by the market surveillance authority on the following two criteria:

- (a) Impact: what the relevance of data modification is in terms of impact on the environment or on the aims of Regulation (EU) 2024/1257;
- (b) Response: whether the vehicle responded by adequately conveying information about the invalidity of the modified data.

When the impact is regarded as insignificant, the outcome shall be considered a ‘pass’.

When the impact is regarded as significant, and the response is deemed adequate by the authority, the outcome shall be considered a ‘pass’.

When the impact is regarded as significant and the response is deemed inadequate, the outcome shall be considered a ‘follow-up’. In such cases, the market surveillance authority shall contact the manufacturer to inform them of the outcome of the test, the characteristics of the vehicle and the nature of the tests performed.

The manufacturer may propose further conditioning to allow additional time for the vehicle to respond to the attack, or repeated tests on similar vehicles. Following the further conditioning or repeated tests, the response of the vehicle shall be evaluated. If the vehicle response is still deemed inadequate by the market surveillance authority, the outcome shall be confirmed as a ‘follow-up’. If the response of the vehicle is deemed adequate, the outcome shall be considered a ‘pass’.

3.3.4. *Follow-up activities (Alt: Reporting, corrective and restrictive measures)*

In the case of an attack with an outcome considered as ‘follow-up’, the manufacturer shall, within a period agreed with the market surveillance authority, propose a technical solution to the market surveillance authority to increase the resistance of the vehicle against attacks, either by effectively mitigating the exploitation of the vulnerability or by implementing methods to detect the attack and initiate an appropriate response, along with a plan to implement this technical solution. The market surveillance authority shall evaluate the technical solution and accompanying implementation plan and request modifications where appropriate.

When the technical solution and implementation plan are accepted by the market surveillance authority, the manufacturer shall proceed with the implementation of the technical solution as agreed with the market surveillance authority.

When the technical solution and implementation plan fail to satisfy the market surveillance authority, the outcome shall be considered a ‘fail’.

3.3.5. Reporting, corrective and administrative measures following a ‘fail’ outcome

A ‘fail’ outcome upon an attack shall be investigated in detail, where necessary in cooperation with the manufacturer and the granting type-approval authority, to establish:

- (a) which vulnerabilities were exploited and whether these were identified at the time of type-approval;
- (b) in case that vulnerabilities were identified at the time of type-approval, whether the mitigation measures have been properly applied;
- (c) whether the vulnerabilities apply to other vehicle types with regard to emissions.

Without prejudice to requirements of Article 52 of Regulation (EU) 2018/858, the details of tests with a ‘fail’ outcome shall be reported to the manufacturer, and the market surveillance authorities shall require the manufacturer to take all appropriate corrective measures without delay to ensure that the exploited vulnerability is effectively mitigated, preferably by an over-the-air software update of the relevant vehicle systems according to UN Regulation No 156⁵.

In determining the appropriateness of corrective measures, authorities shall consider the state of technology of the vehicle type with regard to emissions, the technical feasibility of possible mitigations and the likelihood of exploitation of the vulnerability (approximated by the benefit-cost ratio of the attack). The manufacturer may, with appropriate supporting evidence, demonstrate that a vulnerability cannot be effectively mitigated or that an appropriate response from the tampering detection cannot be realised, due to technical limitations of the vehicle’s architecture.

The results of the investigation of attacks with a ‘fail’ outcome shall be brought to the attention of to the Forum for Exchange of Information on Enforcement as established in Regulation (EU) 2018/858. In case of vulnerabilities that cannot be effectively mitigated due to technical limitations are identified, the Forum for Exchange of Information on Enforcement shall consider requesting corresponding additional mitigations in future type approvals.

3.4. Roles and responsibilities for the Commission and recognised third parties

The Commission and recognised third parties may verify whether vehicles belonging to a certain vehicle type with regard to emissions are sufficiently protected against tampering attempts, security and cybersecurity attacks affecting the systems listed in

⁵ UN Regulation No 156 – Uniform provisions concerning the approval of vehicles with regards to software update and software updates management system [2021/388] (OJ L 82, 9.3.2021, p. 60, ELI: <http://data.europa.eu/eli/reg/2021/388/oj>).

Article 4(7) of Regulation (EU) 2024/1257 according to the methods described in paragraph 3.3.2.

4. ADMINISTRATIVE PROVISIONS

4.1. Administrative provisions for anti-tampering, security and cybersecurity

Documentation to demonstrate compliance with paragraph 3.1 shall be made available by the manufacturer in two parts: (a) The formal documentation package for the approval, which shall be supplied to the type-approval authority at the time of submission of the type approval application. This documentation package shall be used by the type-approval authority as the basic reference for the approval process. The type-approval authority shall ensure that this documentation package remains available for at least 10 years counted from the time when production of the vehicle type (with regard to emissions) is definitively discontinued. (b) Additional material relevant to the requirements of this regulation may be retained by the manufacturer, but made open for inspection at the time of type-approval. The manufacturer shall ensure that any material made open for inspection at the time of type approval remains available for at least a period of 10 years counted from the time when production of the vehicle type (with regard to emissions) is definitively discontinued.

In cases where information is shown to be covered by intellectual property rights or to constitute specific know-how of the manufacturer or of their suppliers, the manufacturer or their suppliers shall make available sufficient information to enable the checks referred to in this Regulation to be made properly. Such information shall be treated on a confidential basis.

The manufacturer shall provide a manufacturer's declaration of compliance with the anti-tampering, security and cybersecurity requirements of this Regulation for the purposes of type-approval. This declaration shall use the format provided in Appendix 2 to this Annex.

Appendix 1

HIGH-LEVEL VULNERABILITIES/THREATS, EXAMPLES OF VULNERABILITIES OR ATTACK METHODS, AND EXAMPLES OF MITIGATIONS

The manufacturers, while analysing the vulnerabilities/threats and assessing the risks for the systems listed in Article 4(7) of Regulation (EU) 2024/1257, shall consider all relevant vulnerabilities or attack methods associated with each high-level vulnerability/threat, and implement proportionate mitigations to protect the vehicle type with regard to emissions as appropriate. Examples of vulnerabilities or attack methods to be considered and examples of mitigations to be implemented are included in Table 4.1, Table 4.2 and Table 4.3 for each high-level vulnerability/threat of each system. The examples referring to Annex 5, Part A and Part B of UN Regulation No 155 shall be considered in the context of the specific system to which they apply.

Table 4.1: High-level vulnerabilities/threats, examples of vulnerabilities or attack methods and example of mitigations

System	High-level vulnerability/threat	Examples of vulnerabilities or attack methods	Examples of mitigations
Pollution control systems	Unauthorised modification of engine/sensor control unit (ECU/SCU) data or software code	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 9.1, 12.1, 17.1, 18.3	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised software injection via ECU flashing tools to disable or alter emission control components, suppress OBD/OBM inducement, or prevent DTCs	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 28.2, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of emission-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
	Manipulation of communication messages inside the vehicle through data modifications	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 11.3, 20.3, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Injection, interception or alteration of vehicle communication messages (e.g., CAN), for example by emulators	Measures to detect malicious internal messages or activity e.g., plausibility checks, timing analysis or certificate-based authentication to maintain emission data integrity
Fuel and reagent system	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 4.1, 25.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised alteration or manipulation of emission-related signals (e.g., ambient or exhaust temperature) by physical modifications, for example by modifiers	Diagnostic functions, plausibility checks or anomaly detection systems
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised modification of engine control software to modify fuel or reagent injection e.g., altering injected quantity	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
		Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 25.1, 27.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of fuel or reagent-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
Engine and engine control units	Unauthorised modification of ECU data or software code	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Installing unauthorised firmware to modify engine functional parameters	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process

	Unauthorised access and modification to ECU hardware	Vulnerabilities or attack methods in Annex 5, Part A of UN Regulation No 155: 4.1, 11.3, 18.3, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of engine control units	Access prevention or detection measures e.g., with tamper resistant or tamper evident hardware

Table 4.2: High-level vulnerabilities/threats, examples of vulnerabilities or attack methods and example of mitigations

System	High-level vulnerability/threat	Examples of vulnerabilities or attack methods	Examples of mitigations
OBM system	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Modifying or disabling vehicle data reported by the OBM system	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 25.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of OBM-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
OBD system	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 19.1, 18.3, 20.4, 20.5, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Installing unauthorised firmware to modify diagnostic behaviour	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 25.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of OBD-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
OBFCM device	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Modifying fuel consumption data reported by the device	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 25.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of OBFCM-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware

Table 4.3: High-level vulnerabilities/threats, examples of vulnerabilities or attack methods and example of mitigations

System	High-level vulnerability/threat	Examples of vulnerabilities or attack methods	Examples of mitigations
Traction batteries and related management systems	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 12.2, 20.3, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Altering software to modify charging/discharging rates and battery durability data	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 27.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of battery-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
Electric Motor and Related Control Units	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 5.1, 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Installing unauthorised firmware to modify inverter or motor controllers	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 25.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units of electric motor-related components	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware
EVP	Unauthorised modification of ECU/SCU data or software code	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 9.1, 20.4, 23.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Modifying environmental data related to the EVP	Access control techniques/designs and secure software update procedures e.g., update authentication, integrity check, secure boot process
	Unauthorised access and modification to ECU/SCU hardware	Vulnerabilities in Annex 5, Part A of UN Regulation No 155: 25.1, 32.1	Corresponding mitigations in Annex 5, Part B of UN Regulation No 155
		Unauthorised access to and modification of internal circuit of control units to modify environmental data related to the EVP	Access prevention or detection measures e.g., with tamper-resistant or tamper-evident hardware

Appendix 2

MANUFACTURER'S DECLARATION OF COMPLIANCE WITH THE ANTI-TAMPERING, SECURITY AND CYBERSECURITY REQUIREMENTS FOR THE PURPOSES OF TYPE-APPROVAL

(Manufacturer):

(Address of the manufacturer):

Declares that:

- (2) For the Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions ⁽¹⁶⁾ listed in Annex I to this declaration are in compliance with the provisions of Regulation (EU) 2024/1257 and its implementing legislation relating to the anti-tampering, security and cybersecurity;
- (3) The anti-tampering, security and cybersecurity information documentation in Annex II to this declaration describing the detailed technical criteria attached to this declaration is correct and complete for all vehicles to which this declaration applies;
- (4) Annex III to this declaration lists any exemptions and/or deficiencies applicable to these vehicles related to the anti-tampering, security and cybersecurity provisions laid down in this Regulation.

Done at [..... Place ⁽¹⁷⁾]

On [..... Date]

[Name and signature of Manufacturer's Representative ⁽¹⁸⁾]

Attachments

Annex I: List of Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions to which this declaration applies

Annex II: Anti-tampering, security and cybersecurity Documentation package

Annex III: list of any exemptions and/or deficiencies applicable to these vehicles related to the OBD provisions laid down in this Regulation

¹⁶ Delete what is not applicable.

¹⁷ Established in the Union.

¹⁸ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

ANNEX [XV](#)

(reserved)

ANNEX XVI

REQUIREMENTS FOR VEHICLES THAT USE A REAGENT FOR THE EXHAUST AFTER-TREATMENT SYSTEM

1. INTRODUCTION

- 1.1. This Annex sets out the requirements for vehicles that rely on the use of a reagent for the after-treatment system in order to reduce emissions.

2. GENERAL REQUIREMENTS

- 2.1. The general requirements for vehicles that use a reagent for the exhaust after-treatment system shall be those set out in paragraph 6.9. of UN Regulation No 154¹⁹.
- 2.2. A template for the manufacturer's declaration of compliance with the reagent requirements is laid down in Appendix 1 of this Annex.

3. TECHNICAL REQUIREMENTS

- 3.1. The technical requirements for vehicles that use a reagent for the exhaust after-treatment system shall be those set out in Appendix 6 to UN Regulation No 154.
- 3.2. The reference to Annex A1 in paragraph 4.1. of Appendix 6 to UN Regulation No 154 shall be understood as reference to Appendix 3 of Annex I to this Regulation.

¹⁹ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

Appendix 1

MANUFACTURER'S DECLARATION OF COMPLIANCE WITH THE REAGENT REQUIREMENTS

(Manufacturer):

(Address of the manufacturer):

Declares that:

For this interpolation family/ies listed in Annex I of this declaration, the requirements regarding the correct operation of systems using a consumable reagent in accordance with Annex XVI of this Regulation are complied with.

Done at [..... Place ⁽²⁰⁾]

On [..... Date]

[Name and signature of Manufacturer's Representative ⁽²¹⁾]

Attachment(s)

Annex I: List of interpolation families to which this declaration applies

²⁰ Established in the Union.

²¹ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

ANNEX XVII

(reserved)

ANNEX XVIII

AMENDMENTS TO IMPLEMENTING REGULATION (EU) 2020/683

The explanatory notes in Annex I to Regulation (EU) 2020/683 are amended as follows:

- (1) the explanatory note (116) is replaced by the following:

‘(116) Add the number of the Euro level and, if appropriate, add:

- where Regulation (EC) No 715/2007 applies (‘Euro 6’), the character corresponding to the provisions used for type-approval, as set out Table 1 of Annex I, Appendix 6 of Implementing Regulation (EU) 2017/1151;
- where Regulation (EU) 2024/1257 applies (‘Euro 7’), the relevant character provided for in Table 1 of Annex I, Appendix 6 of Implementing Regulation (EU) 2025/XX.’

- (2) the explanatory notes (190) and (191) are added:

‘(190) Commission Implementing Regulation (EU) *<publication office to insert reference number to this regulation>* laying down rules for the application of Regulation (EU) 2024/1257 of the European Parliament and of the Council on type-approval of motor vehicles and engines and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (‘Euro 7’)

(191) where Regulation (EC) No 715/2007 applies (‘Euro 6’): number of the base regulatory act and latest amending regulatory act applicable: ...

where Regulation (EU) 2024/1257 applies (‘Euro 7’): the approval certificate numbers of all relevant Implementing Acts, in accordance with example (e) of point 3.1 of Annex IV. List all relevant Implementing Acts approval certificate numbers line by line.’

Annex IV is amended as follows:

- (1) In point 2.2 (section 2), the following point (d) is added:

‘(d) the number of the Implementing Regulation adopted pursuant to Regulation (EU) 2024/1257 and laying down the applicable requirements.’

- (2) In point 2.3 (section 3), the following point (e) is added:

‘(e) where there is an emission type-approval in accordance with the relevant Implementing Act that applies under Regulation (EU) 2024/1257, the number of the last amending implementing act shall be directly followed by one of the two-letter characters from its corresponding implementing act table, i.e. without an asterisk being placed between this number and the relevant two-letter character.’

(3) In point 3.1, the following point (e) is added:

‘(e) in accordance with Implementing Regulation (EU) <*publication office to insert reference number to this regulation*>:

e4*2025/XX*2025/XXMA*00003*00⁽¹⁹⁰⁾’

The Appendix to Annex VIII is amended as follows:

(1) Point 48 under Model B-Part 2 (vehicle categories M₁ and N₁) is replaced by the following:

‘48. Exhaust emissions (162) (163) (164):

The relevant approval certificate number(s) ⁽¹⁹¹⁾: ...’

ANNEX [XIX](#)

(reserved)

ANNEX XX

MEASUREMENTS OF NET POWER AND THE MAXIMUM 30 MINUTES POWER OF ELECTRIC DRIVE TRAINS

1. INTRODUCTION

- 1.1. This Annex sets out requirements for measuring net engine power, net power and the maximum 30 minutes power of electric drive trains.
- 1.2. The latter in case of electric drive trains composed of controllers and motors, which are used as the sole mode of propulsion, at least for part of the time.

2. GENERAL SPECIFICATIONS

- 2.1. The general specifications for conducting the tests and interpreting the results are those set out in paragraph 5 of UN Regulation No 85 ⁽²²⁾, with the exceptions specified in this Annex.
- 2.2. Test fuel
 - 2.2.1. Paragraphs 5.2.3.1., 5.2.3.2.1., 5.2.3.3.1., and 5.2.3.4. of UN Regulation No 85 shall be understood as follows:
 - 2.2.2. The fuel used shall be the one available on the market. In any case of dispute, the fuel shall be the appropriate reference fuel specified in Annex IX to this Regulation.
- 2.3. Power correction factors
 - 2.3.1. By way of derogation from paragraph 5.1 of Annex 5 to UN Regulation No 85, when a turbo-charged engine is fitted with a system which allows compensating the ambient conditions temperature and altitude, at the request of the manufacturer, the correction factors α_a or α_d shall be set to the value of 1.

²²

Regulation No 85 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of internal combustion engines or electric drive trains intended for the propulsion of motor vehicles of categories M and N with regard to the measurement of net power and the maximum 30 minutes power of electric drive trains (OJ L 323, 7.11.2014, p. 52, ELI: <http://data.europa.eu/eli/reg/2014/85/oj>).

ANNEX XXI

WORLD HARMONIZED LIGHT VEHICLE TEST PROCEDURE (WLTP) – (TYPE 1 TEST)

1. INTRODUCTION

This Annex describes the procedure for determining the levels of emissions of gaseous compounds, particulate matter, particle number, CO₂ emissions, fuel consumption, electric energy consumption and electric range from light-duty vehicles.

2. GENERAL REQUIREMENTS

- 2.1. The general requirements for conducting the type 1 test shall be those set out in UN Regulation No 154²³, in relation to level 1A.
- 2.2. The limit values referred to in Table 1A of paragraph 6.3.10. of UN Regulation No 154 shall be replaced by the limit values set out in Table 1 of Annex I to Regulation (EU) 2024/1257.
- 2.3. In relation to the ambient temperature correction test (ATCT), unless the approval authority requires a test to be performed, the template for a manufacturer's declaration as laid down in Appendix 1 of this Annex shall be used.
- 2.4. A template for the manufacturer's declaration for the regeneration requirements is laid down in Appendix 2 of this Annex.

3. TECHNICAL REQUIREMENTS

The technical requirements for conducting the type 1 test shall be those set out in paragraph 6.3. and Annexes Part B of UN Regulation No 154, with the exceptions described in the points below.

- 3.1. Table A4/2 in paragraph 4.2.2.1. of Annex B4 to UN Regulation No 154 shall read as follows:

Energy efficiency class	Range of RRC for C1 tyres	Range of RRC for C2 tyres	Range of RRC for C3 tyres
A	$RRC \leq 6,5$	$RRC \leq 5,5$	$RRC \leq 4,0$
B	$6,6 \leq RRC \leq 7,7$	$5,6 \leq RRC \leq 6,7$	$4,1 \leq RRC \leq 5,0$
C	$7,8 \leq RRC \leq 9,0$	$6,8 \leq RRC \leq 8,0$	$5,1 \leq RRC \leq 6,0$
D	$9,1 \leq RRC \leq 10,5$	$8,1 \leq RRC \leq 9,0$	$6,1 \leq RRC \leq 7,0$
E	$RRC \geq 10,6$	$RRC \geq 9,1$	$RRC \geq 7,1$
Energy efficiency class	Value of RRC to be used for interpolation for C1 tyres	Value of RRC to be used for interpolation for C2 tyres	Value of RRC to be used for interpolation for C3 tyres
A	$RRC = 5,9 (*)$	$RRC = 4,9 (*)$	$RRC = 3,5 (*)$
B	$RRC = 7,1$	$RRC = 6,1$	$RRC = 4,5$

²³ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

C	RRC = 8,4	RRC = 7,4	RRC = 5,5
D	RRC = 9,8	RRC = 8,6	RRC = 6,5
E	RRC = 11,3	RRC = 9,9	RRC = 7,5

(*) In case the actual RRC value is lower than this value, the actual rolling resistance value of the tyre or any higher value up to the RRC value indicated here shall be used for interpolation.

3.2 Paragraph 4.3.1.2.1.3. of Annex B5 to UN Regulation No 154 shall read as follows:

4.3.1.2.1.3. Any other sampling configuration for the PTS for which equivalent solid particle penetration at 15 nm can be demonstrated shall be considered acceptable.

3.3 Paragraph 4.3.1.2.1.5. of Annex B5 to UN Regulation No 154 shall read as follows:

4.3.1.2.1.5. Any other sampling configuration for the OT for which equivalent solid particle penetration at 15 nm can be demonstrated shall be considered acceptable.

3.4 Paragraph 4.3.1.3.3.(g) of Annex B5 to UN Regulation No 154 shall read as follows:

(g) Achieve a particle concentration reduction factor $fr(di)$ for particles of 15 nm, 30 nm and 50 nm electrical mobility diameters that is no more than 100 per cent, 30 per cent and 20 per cent respectively higher, and no more than 5 per cent lower than that for particles of 100 nm electrical mobility diameter for the VPR as a whole;

3.5 Paragraph 4.3.1.3.3.(i) of Annex B5 to UN Regulation No 154 shall read as follows:

(i) Achieve more than 99.9 per cent vaporization of tetracontane ($CH_3(CH_2)_{38}CH_3$) particles with count median diameter > 50 nm and mass > 1 mg/m³, by means of heating and reduction of partial pressures of the tetracontane.

3.6 Table A5/2 in paragraph 4.3.1.3.4. of Annex B5 to UN Regulation No 154 shall read as follows:

Table A5/2

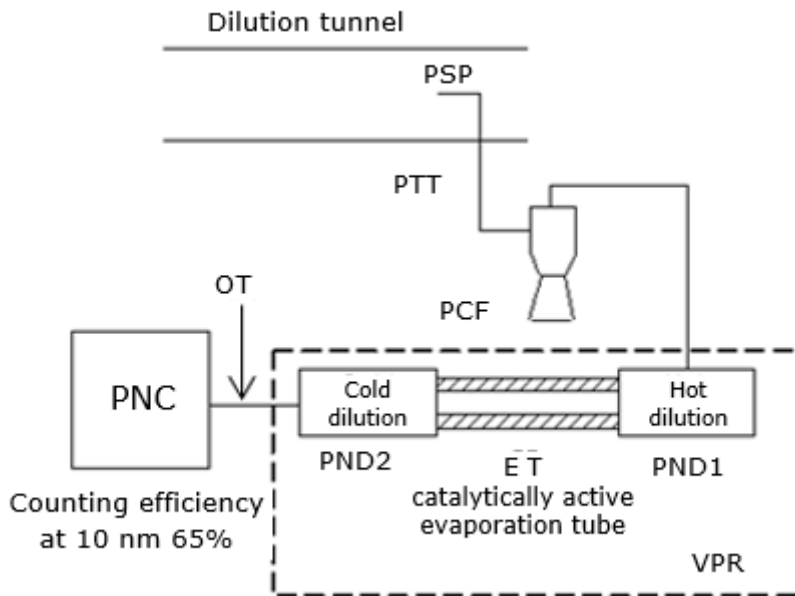
PNC counting efficiency

Nominal particle electrical mobility diameter (nm)	PNC counting efficiency (per cent)
10	65 ± 15
15	> 90

3.7 Figure A5/14 in paragraph 4.3.1.4. of Annex B5 to UN Regulation No 154 shall read as follows:

Figure A5/14

A recommended particle sampling system



- 3.8 The final sentence in paragraph 4.3.1.4. of Annex B5 to UN Regulation No 154 shall read as follows:

The evaporation tube, ET, shall be catalytically active with a wall temperature of 350 °C (± 10 °C).

- 3.9 Paragraph 5.7. of Annex B5 to UN Regulation No 154 is not applicable.

- 3.10 Paragraph 5.7.1.3.(b) of Annex B5 to UN Regulation No 154 shall read as follows:

(b) A second full flow PNC with counting efficiency above 90 per cent for 10 nm equivalent electrical mobility diameter particles that has been calibrated by the method described above. The second PNC counting efficiency shall be taken into account in the calibration.

- 3.11 Paragraph 5.7.1.4. of Annex B5 to UN Regulation No 154 shall read as follows:
5.7.1.4. Calibration shall also include a check, according to the requirements of paragraph 4.3.1.3.4.(h) of this annex, on the PNC's counting efficiency with particles of 10 nm electrical mobility diameter. A check of the counting efficiency with 15 nm particles is not required during periodical calibration.

- 3.12 The last section of paragraph 5.7.2.1. of Annex B5 to UN Regulation No 154 shall read as follows:

The VPR shall be characterised for particle concentration reduction factor with solid particles of 15, 30, 50 and 100 nm electrical mobility diameter. Particle concentration reduction factors $fr(d)$ for particles of 15 nm, 30 nm and 50 nm electrical mobility diameters shall be no more than 100 per cent, 30 per cent and 20 per cent higher respectively, and no more than 5 per cent lower than that for particles of 100 nm electrical mobility diameter. For the purposes of validation, the arithmetic average of the particle concentration reduction factor calculated for particles of 30 nm, 50 nm and 100 nm electrical mobility diameters shall be within ± 10 per cent of the arithmetic average particle concentration reduction factor fr determined during the latest complete calibration of the VPR.

- 3.13 The first section of paragraph 5.7.2.2. of Annex B5 to UN Regulation No 154 shall read as follows:

The test aerosol for these measurements shall be solid particles of 15, 30, 50 and 100 nm electrical mobility diameter and a minimum concentration of 5,000 particles per cm³ and a minimum concentration of 3,000 particles per cm³ of 15 nm electrical mobility diameter at the VPR inlet. The test aerosol shall be thermally stable at the VPR operating temperatures. Particle number concentrations shall be measured upstream and downstream of the components.

- 3.14 The text after the second equation in paragraph 5.7.2.2. of Annex B5 to UN Regulation No 154 shall be deleted.
- 3.15 Paragraph 5.7.2.3. of Annex B5 to UN Regulation No 154 shall read as follows:
5.7.2.3. The VPR shall demonstrate greater than 99.9 per cent removal efficiency of tetracontane (CH₃(CH₂)₃₈CH₃) particles with count median diameter > 50 nm and mass > 1 mg/m³.

Appendix 1

MANUFACTURER'S DECLARATION FOR THE AMBIENT TEMPERATURE CORRECTION TEST (ATCT)

(Manufacturer):

(Address of the manufacturer):

Declares that:

For the vehicles covered by this type-approval, the following family correction factors (FCFs)

Vehicle descriptor (OEM to be defined)	FCF
X	
Y	
Z	

shall be considered for postprocessing of the relevant WLTP type 1 tests at 23 °C. This declaration is based on the testing conditions and settings as defined in UN Regulation No. 154⁽²⁴⁾, Annexes B6a and B6 (Level 1A) as applicable.

Done at [..... Place⁽²⁵⁾]

On [..... Date]

[Name and Signature of Manufacturer's Representative⁽²⁶⁾]

²⁴ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

²⁵ Established in the Union.

²⁶ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

Appendix 2

MANUFACTURER'S DECLARATION FOR THE REGENERATION REQUIREMENTS

(Manufacturer):

(Address of the manufacturer):

Declares²⁷:

For the Vehicle Type(s), Family(ies) or other vehicle descriptor(s)²⁸ with regards to emissions listed in Annex I of this declaration, the following Ki factors in accordance with UN Regulation No. 154 (²⁹), Annex B6, Appendix 1:

Diesel engine

	NO _x	CO	THC+ NO _x	PM	CO ₂
Multiplicative					
Additive					

Petrol engine

	NO _x	CO	THC	NMHC	PM	CO ₂
Multiplicative						
Additive						

Alternatively (if applicable):

☐ Ki factors with a value of 1.0 as the periodic regeneration occurs at least once per Type 1 test and has already occurred at least once during vehicle preparation.

☐ Ki factors with a value of 1.0 as the distance between two successive periodic regenerations is more than 4,000 km of driving repeated Type 1 tests.

☐ CO₂ Ki factors with a value of 1.05 as emission limits are fulfilled during regenerations.

In addition, for the purpose of WLTP Type 1 Charge Sustaining Tests conducted for the purpose of type-approval, conformity of production, in-service conformity and market surveillance, these Ki factors shall be applied for the Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions listed in Annex I of this declaration.

Done at [... Place (³⁰)]

²⁷ Manufacturers shall declare the deterioration factors – either multiplicative or additive – rounded off to two decimals.

²⁸ Delete what is not applicable.

²⁹ UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).

³⁰ Established in the Union.

On [..... Date]

[*Name and Signature of Manufacturer's Representative* (³¹)]

Attachment(s)

Annex I: List of Vehicle Type(s), Family(ies) or other vehicle descriptor(s) with regard to emissions to which this declaration applies

³¹ 'Manufacturer's representative' means any natural or legal person established in the Union who is duly appointed by the manufacturer to represent the manufacturer before the approval authority or the market surveillance authority and to act on the manufacturer's behalf in matters covered by the Regulation, as defined in article 3(41) of Regulation (EU) 2018/858.

ANNEX XXII

DEVICES FOR MONITORING ON BOARD THE VEHICLE, THE CONSUMPTION OF FUEL AND ELECTRIC ENERGY

1. INTRODUCTION

This Annex sets out the definitions and requirements applicable to the devices for monitoring on board the vehicle the consumption of fuel and/or electric energy.

2. GENERAL REQUIREMENTS

The general requirements for OBFCM devices shall be those set out in paragraph 6.3.9. of UN Regulation No 154 ⁽³²⁾.

3. TECHNICAL REQUIREMENTS

The technical requirements for the OBFCM device shall be those set out in Appendix 5 to UN Regulation No 154.

³² UN Regulation No 154 - Uniform provisions concerning the approval of light duty passenger and commercial vehicles with regards to criteria emissions, emissions of carbon dioxide and fuel consumption and/or the measurement of electric energy consumption and electric range (WLTP), 02 series of amendments (OJ L, 2022/2124, 10.11.2022, ELI: <http://data.europa.eu/eli/reg/2022/2124/oj>).