EUROPEAN
COMMISSION

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COMMISSION IMPLEMENTING REGULATION (EU) …/...

of 25.7.2025

laying down rules for the application of Regulation (EU) 2024/1257 of the European Parliament and of the Council as regards specific methods, requirements and tests, including compliance thresholds, for OBFCM devices and OBM systems, characteristics and performance of driver warning systems and inducement methods and methods to assess their operation, EVP format and data and methods of communication of EVP data of motor vehicles of categories M_1 and N_1

(Text with EEA relevance)

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(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) 2022/1362[1], and in particular Article 14(3), point (a) and Article 14(4), points (j), (k), (o), (s), (t), (u) and (v), thereof,

Whereas:

(1) Regulation (EU) 2024/1257 requires the Commission to set out procedures and testing methodologies, administrative provisions, procedures and methodologies for amending and extending emission type-approvals and data access, documentation requirements and templates for emission type-approval, conformity of production, in-service conformity and market surveillance for types of vehicles of categories M1 and N1. By virtue of Article 5(2) and (3) of Regulation (EU) 2024/1257, those rules should apply also to N2 vehicles designated as ‘Euro 7ext’ and ‘Euro 7Gext’ in accordance with that Article.

(2) In particular, rules should be laid down regarding on-board monitoring (OBM) systems, excess exhaust emissions driver warning systems (EEEDWS), on-board fuel and electric energy consumption monitoring (OBFCM) devices, environmental vehicle passport (EVP) and in-vehicle display of environmental data and manipulation devices and manipulation strategies.

(3) The state of development of on-board sensors allows the continuous estimation of the emission rates of nitrogen oxides from light-duty vehicles. The emissions of other pollutants such as particulate matter can be reliably monitored by monitoring the integrity of particulate filters. It is therefore appropriate to set out requirements for

[1] OJ L, 2024/1257, 8.5.2024, ELI: http://data.europa.eu/eli/reg/2024/1257/oj

OBM systems that include on-board sensors to assign a monitoring status to exhaust pollutants of interest to provide information to authorities about the functioning of emission control systems and the quality of exhaust emissions monitoring.

(4) For reasons of simplification and to achieve effective implementation of Regulation (EU) 2024/1257, it is appropriate to lay down rules specifying the general requirements for OBM and EEEDWS systems, OBFCM devices, EVP and in-vehicle display of environmental data laid down in that Regulation. Likewise, it is also appropriate to set out rules for the calculation of the OBM data parameters, for the on-board processing of OBM data, and for access to OBM data via the OBD port.

(5) To ensure that the measures used by OBM systems to induce repairs do not lead to road safety being endangered, it is appropriate that those systems use harmonised inducement methods.

(6) To ensure secure transmission of OBM data over the air, it is appropriate to allow manufacturers to use their own infrastructure and cybersecurity methods provided they comply with United Nations Regulation No. 155.

(7) To ensure the submission of anonymous OBM data by vehicle manufacturers, it is appropriate to lay down requirements to that effect.

(8) To ensure that the anonymous OBM data transmitted to authorities is representative of the aggregate in-service emissions behaviour of vehicle types, it is appropriate to establish methods for the random sampling of OBM data to be transmitted over the air. Where the measures provided for in this Regulation entail the processing of personal data, that processing should be carried out in accordance with Regulations (EU) 2016/679[2] and (EU) 2018/1725[3] of the European Parliament and of the Council, as well as the relevant national law in accordance with those Regulations.

(9) To ensure effective implementation of OBM systems over the lifetime of vehicles placed on the market, specific requirements should be set out to address in-service conformity testing and market surveillance of such systems.

(10) Vehicles for which the OBM system has identified a potential malfunction or tampering should be considered to be in the process of being repaired. It is therefore appropriate to exclude such vehicles from certain aspects of in-service conformity testing.

(11) Requirements for OBM systems should adhere to the principle of technology neutrality where possible. It is therefore appropriate to lay down rules for the processing and transmission of OBM data which are broadly applicable to all powertrains, while recognising that certain OBM parameters may not be relevant to certain powertrains, for example, battery durability parameters for vehicles not equipped with a traction battery, or exhaust emission parameters for vehicles without an engine, and should not be processed in such cases.

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[2] 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).

[3] 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, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39, ELI: http://data.europa.eu/eli/reg/2018/1725/oj).

(12) Certain OBM parameters that characterise the exhaust emissions of vehicles are also relevant to OBFCM devices. It is therefore appropriate to identify such parameters and to ensure they are transmitted by the vehicles using the data transmission methods envisaged for OBM systems, with a view to minimise the duplication of data that are transmitted over the air by OBM systems and OBFCM devices.

(13) The methods and administrative arrangements for the transmission of anonymous OBM data from manufacturers to authorities should be set out at a later stage of implementation. It is therefore appropriate to refer to these by using generic terms such as 'authority server' that do not prejudge the solutions that will be implemented.

(14) It is appropriate to specify the technical requirements so that vehicles make available information on their environmental performance through the EVP and, where appropriate, also by displaying relevant information inside the vehicle. The EVP should use technical solutions that ensure the interoperability with other digital product passports. To ensure the availability of information over time, EVP data should be made available by means of a QR code. The QR code acting as a data carrier for EVP data should respect the guidelines of ISO/IEC Standard 18004:2024.

(15) 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.

(16) 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
Subject matter and scope

1. This Regulation lays down measures for the implementation of Regulation (EU) 2024/1257, with regard to the following:

(a) on-board monitoring (OBM) systems including their sensors and driver warning systems;

(b) on-board fuel and electric energy consumption monitoring (OBFCM) devices;

(c) the format and data and off-board communication methods for the environmental vehicle passport (EVP);

(d) methods for in-vehicle display of environmental data about the vehicle type and the environmental performance of the individual vehicle;

(e) methods and procedures to establish the absence of manipulation devices and manipulation strategies.

2. This Regulation applies to the motor vehicles belonging to the following vehicle categories:

(a) M_1 and N_1;

(b) N_2 designated as ‘Euro 7ext’ and ‘Euro 7Gext’ in accordance with Article 5 of Regulation (EU) 2024/1257.

Article 2
Definitions

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

(1) ‘OBM data’ means data produced by the ‘on-board monitoring system’ or ‘OBM system’, including battery durability data;

(2) ‘OBM trip’ means each period of vehicle operation that starts with the activation of the propulsion system and ends with the deactivation of the propulsion system. For the purpose of determining the end of an OBM trip, sequences of engine shut-off events followed by an engine re-start commanded by the vehicle control system (as a result of the operation of stop-start systems, hybrid vehicle control or automatic stall recovery) shall not be considered a deactivation of the propulsion system;

(3) ‘OBM trip data’ means OBM data that relate to a particular OBM trip;

(4) ‘OBM hash function’ means a standard mathematical algorithm implemented on-board the vehicle that takes a set of OBM data and converts it into a string of characters with a fixed predetermined length, and whose properties can be used to randomly select OBM data to be transmitted over the air, or to verify the integrity of the transmission of OBM data while preserving their anonymous nature;

(5) ‘OBM hash value’ means the output of the OBM hash function for a given input;

(6) ‘OBM data schema’ means a fixed structure for data that are input to the OBM hash function;

(7) ‘generic scan tool’ means an external test equipment used for standardised off-board communication with the vehicle’s electronic control systems;

(8) ‘service tool’ means a specialised external test equipment used to perform manufacturer-defined service operations via communication with the vehicle’s electronic control systems;

(9) ‘QR code’ means a machine-readable matrix code that links to information;

(10) ‘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;

(11) ‘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.

Article 3
General requirements for OBM systems

1. The manufacturer shall ensure that the OBM systems perform the functions as laid down in Articles 4 to 10 by means of hardware and software installed in the vehicle for as long as the vehicle is in use.

2. The manufacturer shall ensure that OBM systems comply with the OBM data requirements as laid down in Annex I.

Article 4

General requirements for the excess exhaust emissions driver warning system

1. The manufacturer shall ensure that the excess exhaust emissions driver warning system (EEEDWS) performs the following functions:

   (a) assign the OBM monitoring status of NOx and particulate matter (PM) in accordance with Article 5;

   (b) provide driver warnings in accordance with Annex II as long as one or more of the exhaust emissions monitoring statuses is in 'Error' status;

   (c) if driver warnings referred to in point (b) are not acted upon within the period specified in Annex II, limit vehicle use through harmonised inducement methods described in that Annex until appropriate repairs are carried out.

2. The EEEDWS may assign the monitoring status for exhaust emissions other than NOx and PM using a generic OBM monitoring status parameter. Points (b) and (c) of paragraph 1 shall apply with regard to the generic OBM monitoring status parameter.

Article 5

OBM monitoring status of exhaust emissions

1. The manufacturer shall ensure that each OBM monitoring status is individually set. Each OBM monitoring status may be updated once after the end of each OBM trip as one of the following:

   (a) 'Normal' status, which shall indicate that the emissions control systems installed on the vehicle are judged to be functioning adequately and the OBM system has high confidence in the accuracy of OBM monitoring;

   (b) 'Intermediate' status, which shall indicate that the OBM system is unable to make a conclusive assessment of the status of the relevant emissions control systems or that an increased uncertainty in OBM monitoring values may exist;

   (c) 'Error' status, which shall indicate that faults or tampering that prevent adequate emissions control or monitoring and justify a repair have been identified.

   As an indicative target when designing the OBM system, the manufacturer shall ensure that if the OBM determines that the vehicle may be in a state where its exhaust emissions as evaluated via a real-driving emissions (RDE) or other applicable in-service conformity test would be equal or higher than 2,5 times the applicable emission limit, the 'Error' status shall be activated.

2. The manufacturer may use any available data or engineering approach which allows the EEEDWS to determine the monitoring status of a pollutant, based on the expected exhaust emissions or performance of emissions control systems of a vehicle.

Article 6

Calculation of NOx emissions for each OBM trip

1. The manufacturer shall ensure that, immediately after the end of each OBM trip, the OBM system performs a calculation of all exhaust emissions of NOx in mg/km for the whole duration of the OBM trip, uninterruptedly. That calculation shall be made

by dividing the estimated total mass emissions of NOx during that OBM trip by the total distance driven during that OBM trip.

2. The calculation referred in paragraph 1 shall provide a reasonable indication of real-world exhaust emissions of NOx based upon any of the following elements:

(a) measurements performed by on-board sensors;

(b) modelled data;

(c) a combination of measurements performed by on-board sensors and modelled data.

Article 7
Calculation of other OBM data for each OBM trip

1. Immediately after the end of each OBM trip, the manufacturer shall ensure that the OBM system calculates the parameters listed in part A of Annex I and Appendices 2 to 6 of part C of Annex I in accordance with the specifications laid down in that Annex for the whole duration of the OBM trip, uninterruptedly.

2. The calculation referred to in paragraph 1 shall be based upon measurements performed by on-board sensors, upon modelled data or a combination thereof and shall provide a reasonable indication of the true values of the signals or parameters.

Article 8
Calculation of hash value and on-board processing of OBM data

1. Immediately after the calculations described in Articles 6 and 7 are completed, the manufacturer shall ensure the OBM system calculates the hash value for the OBM trip data in accordance with part B of Annex I.

2. The manufacturer shall ensure that the OBM system performs on-board processing of all other OBM data in accordance with part B of Annex I.

Article 9
Over-the-air transmission of OBM data

1. The manufacturer shall ensure that the contents of the OBM OTA outbox and other OBM data as required by part C of Annex I are transmitted over the air to servers under their control by taking cybersecurity measures in accordance with UN Regulation No 155[4].

2. The manufacturer shall ensure that over-the-air data transmission of OBM data is performed by the OBM system as soon as connectivity conditions are appropriate.

3. The over-the-air transmission of OBM data may be delayed for vehicles being operated outside the territory of the Union until they are operated in the Union and the connectivity conditions are appropriate.

[4] UN Regulation No 155 – Uniform provisions concerning the approval of vehicles with regards to cybersecurity and cybersecurity management system (OJ L 82, 9.3.2021, p. 30, ELI: http://data.europa.eu/eli/reg/2021/387/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. The manufacturer shall ensure that the OBM system performs the tasks related to over-the-air transmission of OBM data set out in part C of Annex I.

Article 10
Access to OBM data via OBD port

1. The manufacturer shall ensure that all the OBM data stored by the vehicle and OBM instantaneous signals to support vehicle emissions testing are accessible via the standard OBD port using a generic scan tool.

2. The manufacturer shall ensure that the OBM system conforms to the standards specified in Appendix 1, paragraph 6.5.3. of UN Regulation No 154[5], Annex C5.

Article 11
Submission of anonymous OBM data

1. The manufacturer shall collect all OBM data received over the air and submit it to the authority server, in anonymised form, using the infrastructure and common methods established to that effect.

2. The manufacturer shall submit all OBM data received over the air in a calendar year to the authority server before the end of the second quarter of the year which follows the calendar year in which that data has been received.

3. The first OBM data submission by manufacturers shall take place before the end of 2027 and include the data collected in the years 2025 and 2026.

4. When the transmission of OBM data from a group of vehicles is impaired due to the obsolescence of over-the-air transmission hardware, the manufacturer shall notify the granting type-approval authority thereof without delay after the impairment.

5. Upon request of a type-approval authority or the market surveillance authority, the manufacturer shall submit, in anonymised form, the OBM data in their possession received over the air pertaining to specific OBM families or groups of vehicles with common family identifiers listed in part C of Annex I.

6. Authorities shall use anonymous OBM data submitted by manufacturers to support in-service conformity checks carried out in accordance with Regulation (EU) 2024/1257.

Article 12
Requirements for emission type-approval

1. The manufacturer applying for an emission type-approval under Regulation (EU) 2024/1257 shall provide the granting type-approval authority with a declaration of compliance with this Regulation using the format set out in Appendix 1 to Annex III. The declaration shall be submitted to the granting type-approval authority that

[5] 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.

receives the type-approval application under Commission Implementing Regulation (EU) …/... [6].

2. Before the manufacturer receives the emission type-approval according to Article 3 of Commission Implementing Regulation (EU) …/... [*OP please complete reference of C(2025) 4902*], the granting type-approval authority shall request a simple demonstration of the functioning of the OBM system that follows the steps and the form set out in Appendix 2 to Annex III.

3. The granting type-approval authority shall acknowledge receipt of the declaration referred to in paragraph 1 The granting type-approval authority shall add the completed declaration and its attachments to the information package that is made available to other type-approval authorities. The granting type-approval authority shall ensure that the relevant information is added to the test report under Appendix 8a of Annex I of Commission Implementing Regulation (EU) …/... [*OP please complete reference of C(2025) 4902*]. According to Article 34 of Regulation (EU) 2018/858, a revision or an extension of the type-approvals linked to the aforementioned test report shall not be necessary in case of an update of declaration of compliance under Annex III of this Regulation.

4. The declaration referred to in paragraph 1 shall be updated when new vehicles are added to the scope of the declaration. Such updates to this declaration shall not require a new demonstration as referred to in paragraph 2. The granting type-approval authority shall apply paragraph 3 to every updated declaration.

Article 13
In-service conformity checks of OBM systems

Measures to ensure in-service conformity of OBM systems 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 part A of Annex IV to this Regulation.

Article 14
OBM monitoring status and eligibility of vehicles for in-service conformity checks

1. Vehicles with at least one OBM monitoring status referred to in Article 5 set to ‘Error’ shall not be eligible for in-service conformity testing of exhaust emissions in accordance with Article 10 of Commission Implementing Regulation (EU) …/... [*OP please complete reference of C(2025) 4902*]. Exhaust emissions in-service conformity tests where at least one OBM monitoring status transitions to ‘Error’ after the test shall be void.

2. During in-service conformity testing of exhaust emissions in accordance with Article 10 of Commission Implementing Regulation (EU) …/... [*OP please complete reference of C(2025) 4902*], the following shall be considered as warning signals that

[6] Commission Implementing Regulation (EU) …/... 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 *[OP please complete reference of C(2025)4902].*

may suggest malfunctioning in accordance with point 8.3.2 of UN Regulation No 168[7]:

(a) the presence of one or more OBM monitoring statuses set to 'Error' as referred to in Article 5(1), point (c);

(b) the presence of one or more ongoing OBD faults for which a malfunction indicator is active;

(c) other faults that are apparent from a visual inspection of the vehicle prior to the trip.

3. Vehicles with at least one OBM monitoring status set to 'Error' prior to testing shall not be eligible for in-service conformity checks of the OBM system. Such vehicles shall, however, be eligible to perform a verification in accordance with Article 15.

4. Vehicles with at least one monitoring status set to 'Intermediate' prior to testing shall be eligible for in-service conformity testing of exhaust emissions in accordance with Article 10 of Commission Implementing Regulation (EU) …/... [*OP please complete reference of C(2025) 4902*] and for in-service conformity checks of the OBM system in accordance with Annex IV of this Regulation, provided that a pre-conditioning procedure described point 4.6 of that Annex is performed.

Article 15
Market surveillance of OBM systems

Market surveillance authorities shall perform a verification of the compliance of OBM systems with the Articles 3 to 10 in accordance with part B of Annex IV.

Article 16
Requirements for OBFCM devices

1. The manufacturer shall ensure that vehicles equipped with an OBFCM devices transmit the OBM data parameters with relevance to OBFCM devices as specified in Appendices 2 and 3 to Annex I.

2. The manufacturer shall ensure that the transmission of OBM data parameters with relevance to OBFCM is performed in accordance with Article 9.

Article 17
Environmental vehicle passport

1. The manufacturer shall issue an environmental vehicle passport (EVP) for each vehicle containing information on the environmental performance of their vehicle type.

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

2. The manufacturer shall ensure that the data and format of the EVP are as laid down in Annex V.

3. The manufacturer shall use digital means to ensure off-board access to EVP data in accordance with Annex V.

4. The manufacturer shall ensure that EVP data are accessible for at least 20 years after the date of manufacture of the vehicle.

5. In the case of a multi-stage type-approval, the manufacturer referred to in paragraphs 1 to 4 shall be understood as the manufacturer of the base vehicle, and the EVP data shall refer to the base vehicle.

Article 18
In-vehicle display of environmental data

The manufacturer shall ensure that the environmental data about the vehicle type and the environmental performance of individual vehicles listed in Annex VI are displayed inside the vehicle in accordance with that Annex.

Article 19
Manipulation devices and manipulation strategies

1. Vehicle manufacturers, type-approval authorities, market surveillance authorities and other actors indicated in Annex VII shall apply the tests, methods and procedures to establish the absence of manipulation devices and manipulation strategies as laid down in Annex VII.

2. The manufacturer shall produce all required documentation to technically justify the absence of manipulation devices and manipulation strategies in accordance with Annex VII.

Article 20

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, 25.7.2025

For the Commission
The President
Ursula VON DER LEYEN