Council of the European Union

Brussels, 29 August 2025
(OR. en)

12271/25

**Interinstitutional File:**
**2025/0097 (COD)**

**LIMITE**

**TRANS 347**
**CODEC 1166**
**ENV 776**
**MI 600**

PUBLIC

**WORKING DOCUMENT**

| | |
|---|---|
| From: | General Secretariat of the Council |
| To: | Delegations |
| Subject: | Proposal for a Directive of the European Parliament and of the Council amending Directive 2014/45/EU on periodic roadworthiness tests for motor vehicles and their trailers and Directive 2014/47/EU on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union<br>- Presidency compromise |

In view of the Land transport working party on 4 September 2025 (attaché format), delegations find attached a Presidency compromise on the above proposal.

The Presidency has focused the work on this first compromise text on Articles 3, 4, 8 of the PTI-Directive, Articles 3 to 9 of the RSI-Directive, Annex I to the PTI- Directive and Annex II to the RSI-Directive, except items 4.14, 8.2, 10, and Annex IV to the PTI-Directive.

Suggested changes are marked in **bold underline** and ~~strikeghrough~~ and concern the following provisions:

PTI Directive: Articles 3, 4, 8, 10, Annex I introductory part and items 1, 4, 5, 7, Annex IV.

RSI Directive: Articles 3, 4a, 5, 7, Annex II items 1, 4, 5, 7.

Recitals will be dealt with at a later stage, unless changes to recitals are presented together with the Article.

**ANNEX**

2025/0097 (COD)

Proposal for a

**DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**amending Directive 2014/45/EU on periodic roadworthiness tests for motor vehicles and their trailers and Directive 2014/47/EU on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union**

(Text with EEA relevance)

PUBLIC

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 91(1) thereof,

Having regard to the proposal from the European Commission,

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

Having regard to the opinion of the European Economic and Social Committee[1],

Having regard to the opinion of the Committee of the Regions[2],

Acting in accordance with the ordinary legislative procedure,

Whereas:

(1) [recitals]

HAVE ADOPTED THIS DIRECTIVE:

*Article 1*

**Amendments to Directive 2014/45/EU**

Directive 2014/45/EU is amended as follows:

(1) Article 2 is amended as follows:

---

1 OJ C , , p. .
2 OJ C , , p. .

(a) in paragraph 1, the sixth indent is replaced by the following:

'– two- or three-wheel vehicles – vehicle categories L3e, L4e, L5e and L7e with an engine capacity of more than 125 $cm^3$, or with a maximum continuous rated or net power above 11 kW;

– wheeled tractors of categories T1b, T2b, T3b, T4.1b, T4.2b and T4.3b the use of which mainly takes place on public roads with a maximum design speed exceeding 40km/h.';

(b) in paragraph 2, the seventh indent is deleted;

(2) Article 3 is amended as follows:

(a) the following point (6a) is inserted:

'(6a) 'connected vehicle' means any vehicle ~~with a device installed which is designed to allow~~ **with** a wireless connection or **that can communicate** ~~communication~~ with external devices, vehicles, networks or services;';

(b) point (10) is replaced by the following:

'(10) 'approval' means a procedure whereby a Member State certifies that a vehicle satisfies the relevant administrative provisions and technical requirements referred to in Regulations (EU) No 167/2013, (EU) No 168/2013 and (EU) 2018/858;';

(c) point (12) is replaced by the following:

'(12) 'roadworthiness certificate' means a roadworthiness test report **in digital format, or a certified printout thereof,** issued by the competent authority or a testing centre;';

(d) the following point (12a) is inserted:

(12a) '**EU** temporary roadworthiness certificate' means a roadworthiness certificate issued by the competent authority, or a testing centre established in a Member State other than the Member State of registration of the vehicle in accordance with Article **8** ~~4(3)~~;';

(3) Article 4 is replaced by the following:

*'Article 4*

**Responsibilities**

1. Each Member State shall ensure that vehicles registered in its territory are periodically tested in accordance with this Directive.

2. Without prejudice to paragraph~~s 3 and~~ 4, roadworthiness tests shall be carried out by the Member State of registration of the vehicle, by a public body entrusted with that task by that Member State or by bodies or establishments designated and supervised by that Member State, including authorised public or private bodies.

**3.** ~~4.~~ Member States may recognise a roadworthiness certificate~~, other than the temporary roadworthiness certificate referred to in paragraph 3,~~ issued by a Member State other than the Member State of registration of the vehicle. In such cases, that roadworthiness certificate shall be considered equivalent to the roadworthiness certificate issued by the Member State of registration. Member States which decide to recognise a roadworthiness certificate issued by another Member State shall inform the Commission and the other Member States accordingly.

**4.** ~~3.~~ In the case of $M_1$ vehicles, roadworthiness tests may**, in accordance with Article 8,** also be carried out in a Member State other than the Member State of registration of the vehicle. **The Member State of registration shall recognise the validity of an EU temporary roadworthiness certificate issued in that other Member State.** ~~The result of such roadworthiness test shall be included on a temporary roadworthiness certificate, which shall be valid for six months. The competent authority shall communicate the result of the test to the Member State of registration, which shall record it in the national vehicle register. However, unless the Member State of registration recognises roadworthiness certificates issued by the Member State concerned in accordance with paragraph 4, the subsequent roadworthiness test shall take place in the Member State of registration of the vehicle.~~

**5**~~6~~. ~~In accordance with the principles laid down in Regulation (EU) 2018/858, v~~**V**ehicle manufacturers shall make available ~~the set of~~ technical information **specified by implementing acts** referred to in paragraph **6**~~5~~ free of charge, and without undue delay, **[** to relevant competent authorities **or trust centres responsible for managing access to that information ]**, in a non-discriminatory manner and in a machine-readable format. Those **[** competent authorities **or trust centres ]** shall make that technical information available to the testing centres~~. authorised by them.~~

**6**~~5~~. The Commission shall adopt implementing acts to specify the set of technical information necessary for roadworthiness testing of the items to be tested, on the use of the recommended test methods, and to establish detailed rules concerning the data format, and the procedures for accessing the relevant technical information. Such technical information may include, in particular, instructions and data on the use of the electronic vehicle interface, diagnostic trouble codes, and software versions, and descriptions and illustrations of warning indicators or tell-tales.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 19(2).

7. Member States shall ensure that the responsibilities for keeping a vehicle in a safe and roadworthy condition are set out in national law.';

*NOTE: paragraph 3 of the Commission proposal partly shifted to Article 8.*

Related recitals:

(9) According to the feedback received from Member States and industry representatives, the current legal requirements aiming to ensure that the technical data needed to carry out periodic technical inspections are available to testing centres have proven to be ineffective. It is therefore necessary to specify**, without prejudice to communication requirements under Regulation (EU) 2018/858,** that a minimum set of information should be made available free of charge and without undue delay to **[** the competent authorities **or trust centres responsible for managing access to that information ]**, which should then ensure that the testing centres authorised by them also have the required access.

(10) The Member State of registration should recognise a**n EU** temporary roadworthiness certificate issued by another Member State for a period of up to six months, provided that the subsequent periodic technical inspection**, the date of which is determined by the duration of the EU temporary roadworthiness certificate,** is conducted in the Member State of registration. That will contribute to facilitating the free movement of people while respecting the basic requirement that vehicles are generally to be tested in the Member State of registration.

(4) the following Article 4a is inserted:

'*Article 4a*

**Recording of odometer readings**

1. Each Member State shall take the measures necessary to enable the recording of odometer readings in a national database or in the national vehicle register. They shall require that, in addition to testing centres, any service provider who issues an invoice or other document in connection with any repair or maintenance work carried out on a vehicle, records the odometer reading in that database or national vehicle register when that work is carried out. Member States shall also require vehicle manufacturers to transmit the odometer readings of connected vehicles which they have produced every three months starting from the date of first registration of the vehicle.

2. Member States shall make the odometer history of vehicles registered by them available to inspectors, to the holder of the registration certificate and to competent authorities in the Member States responsible for roadworthiness testing, vehicle registration, and vehicle approval.

3. Member States shall take appropriate measures to inform potential buyers of second-hand vehicles about the availability of odometer history referred to in paragraph 2.

4. Member States shall also make available the odometer data stored in the national databases and national vehicle registers referred to in paragraph 1, in an anonymised form including only the first 10 characters of the vehicle identification number, to the national statistical institutes and to the Commission (Eurostat) in accordance with Articles 17a and 17b of Regulation (EC) No 223/2009*.

* Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and repealing Regulation (EC, Euratom) No 1101/2008 of the European Parliament and of the Council on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities, Council Regulation (EC) No 322/97 on Community Statistics, and Council Decision 89/382/EEC, Euratom establishing a Committee on the Statistical Programmes of the European Communities (OJ L 87, 31.3.2009, p. 164, ELI: http://data.europa.eu/eli/reg/2009/223/oj).';

(5) Article 5 is replaced by the following:

*'Article 5*

**Date and frequency of testing**

1. Vehicles shall be subject to a roadworthiness test at least within the following intervals, without prejudice to the period of flexibility applied in Member States under paragraph 4:

   (a) vehicles of category $M_1$ and $N_1$: four years after the date on which the vehicle was first registered, and thereafter every two years until 10 years after the date on which the vehicle was first registered, and thereafter annually; however, vehicles of category $N_1$ shall also be subject to a roadworthiness test for the items listed in Section 8.2 of Annex I, one year after the date on which the vehicle was first registered, and thereafter annually;

   (b) vehicles of category $M_1$ used as taxis or ambulances, vehicles of categories $M_2$, $M_3$, $N_2$, $N_3$, $O_3$ and $O_4$: one year after the date on which the vehicle was first registered, and thereafter annually;

   (c) wheeled tractors of categories T1b, T2b, T3b, T4.1b, T4.2b and T4.3b the use of which mainly takes place on public roads for commercial road haulage purposes: four years after the date on which the vehicle was first registered, and thereafter every two years.

   For the purposes of point (a) of the first subparagraph, in the case of the roadworthiness tests referred to in Article 4(**4** ~~3~~), the expiry date of the subsequent roadworthiness certificate shall be counted as from the expiry date of the **EU** temporary roadworthiness certificate issued as a result of that test.

2. Member States shall establish appropriate intervals within which vehicles of categories L3e, L4e, L5e and L7e with an engine capacity of more than 125 cm3 or with a maximum continuous rated or net power above 11 kW, are to be subject to a roadworthiness test.

3. Notwithstanding the date of a vehicle's last roadworthiness test, vehicles shall undergo a roadworthiness test when the safety and environmental systems and components of the vehicle have been significantly altered or modified.

4. Member States or competent authorities may establish a reasonable period during which the roadworthiness test is to be carried out, not exceeding the intervals laid down in paragraph 1.';

PUBLIC

(6) Article 6 is amended as follows:

(a) paragraph 1 is replaced by the following:

'1. For vehicle categories falling within the scope of this Directive, with the exception of categories L3e, L4e, L5e and L7e, Member States shall ensure that roadworthiness tests cover at least the areas referred to in point 2 of Annex I.';

(b) paragraph 3 is replaced by the following:

'3. For vehicle categories L3e, L4e, L5e and L7e, with an engine capacity of more than 125 $cm^3$ or with a maximum continuous rated or net power above 11 kW, Member States shall determine the areas, items and appropriate methods of testing.';

(c) the following paragraph 4 is added:

'4. The Member State of registration may decide not to require the testing of items 8.1 or 8.2 of point 3 of Annex I to this Directive during the roadworthiness test of a vehicle where that vehicle successfully passed a corresponding exhaust test or noise test, or both, involving the checking of item 8.1 or 8.2 or both of point 3 of Annex to Directive 2014/47/EU during the six months preceding the due date of the roadworthiness test.';

(7) Article 8 is replaced by the following:

*'Article 8*

**Roadworthiness certificate and EU temporary roadworthiness certificate**

1. Member States shall ensure that testing centres or, where relevant, the competent authorities, which have carried out a roadworthiness test on a vehicle issue a roadworthiness certificate **or, in the case referred to in Article 4(4), an EU temporary roadworthiness certificate,** for that vehicle indicating at least the standardised elements of the corresponding harmonised Union codes as laid down in Annex II. Member States shall ensure roadworthiness certificates **and EU temporary roadworthiness certificates** are issued as electronic attestations of attributes to European Digital Identity Wallets in accordance with Regulation (EU) No 910/2014 of the European Parliament and of the Council**.

Member States shall ensure that roadworthiness certificates **and EU temporary roadworthiness certificates** contain the information necessary for authentication and validation of those certificates.

Member States shall inform the Commission of trusted issuers of roadworthiness certificates **and of EU temporary roadworthiness certificates** which they shall keep up to date. The Commission shall make a list of those issuers publicly available through a secure channel and in an electronically signed or sealed form suitable for automated processing.

**1a. An EU temporary roadworthiness certificate shall be valid for six months. The competent authority shall communicate the result of the test to the Member State of registration, which shall record it in the national vehicle register.**

**Unless the Member State of registration recognises roadworthiness certificates issued by the Member State concerned in accordance with Article 4 paragraph 3, the subsequent roadworthiness test shall take place in the Member State of registration of the vehicle; the EU temporary roadworthiness certificate shall contain information to that effect.**

. Member States shall require that testing centres or, where relevant, the competent authorities, provide, on request, a certified printout of the roadworthiness certificate **or EU temporary roadworthiness certificate** to the person presenting the vehicle for testing. Those printouts shall be user-friendly and shall contain an interoperable [barcode][QR code], which allows the verification of its authenticity, validity and integrity. By six months after the adoption of the implementing acts referred to in paragraph 9, the [barcode][QR code] shall comply with the technical specifications set out in those implementing acts. The information contained in the certificate shall also be displayed in human-readable form and shall be provided in at least the official language or languages of the issuing Member State.

3. Notwithstanding Article 5, in the case of re-registration of a vehicle already registered in another Member State, each Member State shall recognise the roadworthiness certificate issued by that other Member State, whether in electronic or paper format, as if it had itself issued that certificate, provided that the roadworthiness certificate is still valid in terms of the frequency intervals established for periodic roadworthiness tests by the re-registering Member State.

Member States shall communicate any new specimen of the roadworthiness certificate **or EU temporary roadworthiness certificate**, and the description of the set of data issued to roadworthiness certificates as electronic attestations of attributes to the Commission and to the other Member States without undue delay. The Commission shall publish those specimens and descriptions of the sets of data.

4. In addition to the provisions of paragraph 3, Member States shall recognise the validity of a roadworthiness certificate, whether in electronic or paper format, where there is a change in ownership of a vehicle having a valid proof of periodic roadworthiness test.

~~5. The Member State of registration shall recognise the validity of a temporary roadworthiness certificate issued in another Member State.~~

6. Testing centres shall communicate electronically to the competent authority of the Member State concerned, the information included in the roadworthiness certificates which they issue. Such communication shall take place within a reasonable time after each roadworthiness certificate is issued. Member States shall determine the period during which the competent authority is to retain that information. The duration of that period shall not be less than 36 months, without prejudice to the national tax systems of the Member States.

7. Member States **may decide**~~shall ensure~~ that the information included in the previous roadworthiness certificate is made available to the inspectors.

8. Member States shall ensure that the results of the roadworthiness test are notified, or made available electronically, as soon as possible to the authority responsible for registration of the vehicle. That notification shall contain the information included in the roadworthiness certificate.

9. By [date of entry into force + 2 years], the Commission shall adopt implementing acts to lay down the technical specifications and rules regarding the following:

(a) securely issuing and verifying the certificates referred to paragraphs 1 and 2;

(b) ensuring the protection and security of personal data;

(c) laying down the common data structure of roadworthiness certificates **and EU temporary roadworthiness certificates**;

(d) issuing and verifying a valid, secure and interoperable [barcode][QR code];

(e) notifying trusted issuers of roadworthiness certificates **and EU temporary roadworthiness certificates**.

Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 19(2).

---

** Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC (OJ L 257, 28.8.2014, p. 73, ELI: http://data.europa.eu/eli/reg/2014/910/oj)';

*NOTE: paragraph 5 shifted to Article 4.*

(8) Article 9 is replaced by the following:

'*Article 9*

**Follow-up of deficiencies**

1. In the case of minor deficiencies only, the test shall be deemed to have been passed, the deficiencies shall be rectified, and the vehicle shall not be re-tested.

2. In the case of major deficiencies, the test shall be deemed to have been failed. The Member State or the competent authority shall decide on the period during which the vehicle in question may be used before it is required to undergo another roadworthiness test, which shall take place not later than two months after the initial test. The result of the test and the time limit until the subsequent test shall be notified to the Member State of registration and recorded in the vehicle register in accordance with Article 3a(1) of Council Directive 1999/37/EC***. That subsequent test may take place in the Member State where the vehicle failed the initial test, or in the Member State of registration.

3. In the case of dangerous deficiencies, the test shall be deemed to have been failed. The Member State or the competent authority may decide that the vehicle in question is not to be used on public roads and that the authorisation for its use in road traffic is to be suspended for a limited period of time, without requiring a new process of registration. Such request for suspension shall be notified to the Member State of registration and the suspension shall be recorded in the vehicle register in accordance with Article 3a(1) of Directive 1999/37/EC. When the deficiencies are rectified, a new roadworthiness certificate shall be issued without

delay testifying that the vehicle is in a roadworthy condition. The new certificate shall be issued by the competent authority that requested the suspension.

4. In the case of obvious tampering or manipulation of any component of the vehicle, including its emission control system, silencer, safety-related systems, or odometers, with the aim of reducing or misrepresenting the distance record of a vehicle, such tampering or manipulation shall be considered as a major or dangerous deficiency and shall be punishable by effective, proportionate, dissuasive and non-discriminatory penalties.

*** Council Directive 1999/37/EC of 29 April 1999 on the registration documents for vehicles, (OJ L 138, 1.6.1999, p. 57, ELI: http://data.europa.eu/eli/dir/1999/37/oj)';

**(8a) In Article 10, the first subparagraph of paragraph 1 is replaced by the following:**

'1. The testing centre or, if relevant, the competent authority of the Member State that has carried out a roadworthiness test on a vehicle registered in its territory **or a roadworthiness test in accordance with Aticle 4(4)** shall provide a proof, such as an indication on the vehicle registration document, a sticker, a certificate or any other easily accessible information, for each vehicle which has passed such a test. The proof shall indicate the date by which the next roadworthiness test is to take place.';

(9) Article 16 is replaced by the following:

'*Article 16*

**Exchange of data between Member States' authorities**

1. Member States shall assist one another in the implementation of this Directive. They shall exchange information and data in particular with the aim of checking, at the time of roadworthiness testing, the vehicle's legal and technical status, where necessary in the Member State in which it is registered.

Member States shall provide access to vehicle registration data, data regarding the content of the certificates of conformity, the last roadworthiness certificate, any technical roadside inspection report, and the odometer history of the vehicle stored in national databases, to the competent authorities of and testing centres authorised by other Member States.

Member States shall interconnect their electronic systems on roadworthiness certificates and on odometer history through the MOVE-HUB electronic system developed by the Commission in such a way that the competent authorities and authorised testing centres of any Member State are able to consult the relevant database or the national vehicle register of any other Member State in real time.

2. By [PLEASE INSERT DATE: 2 years after the entry into force of this directive], the Commission shall adopt implementing acts laying down the necessary arrangements for the implementation of the functionalities of the MOVE-HUB electronic system and specifying

the minimum requirements for the format and content of the information and data to be exchanged by Member States regarding vehicles subject to roadworthiness testing. Those implementing acts shall ensure the protection of personal data and shall be adopted in accordance with the examination procedure referred to in Article 19(2).

3. The electronic systems interconnections provided for in paragraph 1 shall be operational within one year after the adoption of the implementing acts referred to in paragraph 2.';

(10) Article 17 is amended as follows:

(a) the first indent is replaced by the following:

'– update only the vehicle category designations referred to in Article 2(1), Article 5(1) and (2), and Article 6(1) and (2) as appropriate in the event of changes to the vehicle categories resulting from amendments to the type-approval legislation referred to in Article 2(1), without affecting the scope and frequency of testing;';

(b) the third indent is replaced by the following:

'– adapt point 3 of Annex I, following a positive assessment of the costs and benefits involved, in respect of the list of test items, methods, reasons for failure and assessment of deficiencies;';

(c) the following fourth indent is added:

'– specify the methods for the particle number (PN) measurement of positive ignition engines and for the nitrogen oxides ($NO_X$) measurement of compression and positive ignition engines provided for in Section 8.2 of point 3 of Annex I.';

(11) Article 20 is replaced by the following:

'*Article 20*

**Reporting**

By [two years from the date referred to in Article 20a(1)], the Commission shall submit a report to the European Parliament and the Council on the implementation and effects of this Directive, in particular as regards the effectiveness of the provisions on its scope, notably in relation to L-category vehicles, the frequency of testing, the mutual recognition of roadworthiness certificates in cases of re-registration of vehicles originating from another Member State, and the recognition of **EU** temporary roadworthiness certificates. The report shall also analyse whether it is necessary to update the Annexes, particularly in the light of technical progress and practices.';

(12) the following Article 20a is inserted:

'*Article 20a*

**Communication of information to the Commission**

1. By 31 March 2030, and by 31 March every three years thereafter, Member States shall communicate to the Commission through the online reporting platform referred to in Article 28 of Regulation (EU) 2018/1999 of the European Parliament and of the Council**** ('e-platform'), the data collected relating to each of the previous three calendar years and concerning the vehicles inspected in their territory. Those data shall include the following (per calendar year):

   (a) the number of testing centres per Member State;

   (b) the total number of vehicles inspected;

   (c) the number of vehicles inspected per category;

   (d) the areas checked, and the items failed, in accordance with point 3 of Annex I to this Directive;

   (e) the number, category and [failure rate][test result] of vehicles tested registered in another Member State.

   The first report shall cover the years 2027, 2028 and 2029, separately.

2. The Commission shall adopt implementing acts laying down the format to be used by Member States for communication of the data referred to in paragraph 1 through the e-platform. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 19(2).

   The Commission shall report to the European Parliament and to the Council regarding the data collected pursuant to paragraph 1.

**** Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1, ELI : http://data.europa.eu/eli/reg/2018/1999/oj).';

(13) Article 22 is replaced by the following:

'*Article 22*

**Extension of validity of roadworthiness certificates in case of crisis**

1. For the purposes of this Article, the following definitions shall apply:

   (a) 'crisis situation' means an exceptional, unexpected and sudden, natural or human - made event of extraordinary nature and scale that takes place inside or outside of the

PUBLIC

Union, with significant direct or indirect impacts on the area of road transport and that also prevents or significantly impairs the possibility for the owners or holders of vehicles registered in the Member States or relevant national authorities from carrying out roadworthiness tests;

(b) 'crisis period' means the period during which a Member State is authorised by the Commission, in accordance with the procedure referred to in paragraph 2, to adopt the measures referred to in this Article.

2. In the event of a crisis situation covering all or part of the territory of a Member State, that Member State may refer the matter to the Commission, by means of a duly motivated request, with a view to the adoption of a decision authorising that Member State to adopt the measures referred to in this Article for all or part of its territory. Such measures may be applied for a maximum period of six months. The Commission may authorise the measures to be extended, at the request of the Member State, for additional periods of six months, as long as the crisis situation persists.

3. The Commission may decide that the crisis period started before the matter was referred by the Member State in question pursuant to paragraph 2.

4. If the Commission receives duly motivated requests by two or more Member States relating to a single crisis situation covering all or part of their territories, it may adopt a single decision applying to all of those Member States.

5. Notwithstanding Article 5(1), Article 10(1) and point 8 of Annex II, the competent authorities of the Members States may extend the period of validity of roadworthiness certificates of all or certain categories of vehicles that have expired or would otherwise expire during the crisis period, for a maximum period of six months. That period may be renewed for successive additional periods of six months, as long as the crisis persists and the Commission authorises it.

6. The measures adopted by the Member States on the basis of this Article shall be immediately notified to the Commission, which shall inform the other Member States and publish a notice in the Official Journal of the European Union.';

(14) Annex I, Annex III and Annex IV are amended in accordance with Annex I to this Directive.

*Article 2*

**Amendments to Directive 2014/47/EU**

Directive 2014/47/EU is amended as follows:

(1) Article 1 is replaced by the following:

*'Article 1*

**Subject matter**

This Directive lays down minimum requirements for a regime of technical roadside inspections of the roadworthiness of commercial vehicles, and for remote sensing of vehicles, circulating within the territory of the Member States.';

(2) Article 2 is amended as follows:

(a) paragraph 1 is amended as follows:

(i) the following point (aa) is inserted:

'(aa) motor vehicles designed and constructed primarily for the carriage of goods, having a maximum mass not exceeding 3.5 tonnes – vehicle category N1;';

(ii) the following second subparagraph is added:

'Article 4a shall also apply to motor vehicles designed and constructed primarily for the carriage of persons and their luggage comprising not more than eight seating positions in addition to the driver's seating position – vehicle category M1, and to two-, three- or four-wheel motor vehicles referred to in Article 4 of Regulation (EU) No 168/2013 of the European Parliament and of the Council***** – vehicle category L.

***** Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles (OJ L 60, 2.3.2013, p. 1, ELI: http://data.europa.eu/eli/reg/2013/167/oj).';

(b) paragraph 2 is replaced by the following:

'2. This Directive shall not affect the right of Member States to carry out technical roadside inspections on vehicles not referred to in paragraph 1, and to check other aspects of road transport and safety, or to carry out inspections in places other than public roads. Nothing in this Directive shall prevent a Member State from limiting the use of a particular type of vehicle to certain parts of its road network for reasons of road safety.';

(3) Article 3 is amended as follows:

(a) point (~~11~~**13**) is replaced by the following:

‘(~~11~~**13**) ‘roadworthiness certificate’ means a roadworthiness test report as defined in Article 3, point (12), of Directive 2014/45/EU;’;

(b) point 18 is deleted;

(c) the following points (21) **to (24)** ~~and (22)~~ are added:

‘(21) ‘remote sensing’ means the screening of vehicles by measuring on-road exhaust emissions, including nitrogen oxides and particulate matter, or noise levels of vehicles passing in the proximity of fixed or mobile roadside equipment, or by plume chasing in the case of screening vehicles for air pollutant emissions;

(22) ‘plume chasing’ means the measuring of on-road air pollutant emissions of vehicles followed by a chasing vehicle equipped with an appropriate sampling device and measuring instrument**;**

**(23) ‘zero-emission vehicle’ means any motor vehicle without an internal combustion engine and a ‘zero emission heavy-duty vehicle’ as defined in Article 3, point (11) of Regulation (EU) 2019/1242 of the European Parliament and of the Council;**

**(24) ‘high-emitting vehicle’ means a vehicle having an exhaust or noise emission multiple times the average emission compared to vehicles belonging to the same vehicle category.**

**For exhaust emissions, a high-emitting vehicle emits at least [double] the level of emissions for vehicles belonging to the same vehicle category, emission class, and having the same type of ignition, namely positive or compression ignition.**

**For noise, a high-emitting vehicle emits at least [6] dB above the average level for vehicles belonging to the same vehicle category**;

(4) Article 4 is replaced by the following:

‘*Article 4*

**Roadside inspection system**

The technical roadside inspection system shall include the use of remote sensing as referred to in Article 4a, initial technical roadside inspections as referred to in Article 10(1), and more detailed technical roadside inspections as referred to in Article 10(2).’

(5) the following Article 4a is inserted:

‘*Article 4a*

**Remote sensing**

1. Member States shall use remote sensing technology to screen motor vehicles for their air pollutant and noise emissions **to help identify high-emitting vehicles**. Each year, each

Member State shall take the measures necessary to screen **the exhaust or noise emission level of** the equivalent **to**~~of~~ at least **[**30 %**]** of the fleet of motor vehicles registered in its territory**, excluding zero-emission vehicles,** using that technology.

**To fulfill this requirement, Member States may use any combination of remote sensing, be it fixed or mobile, stationary roadside equipment, and plume chasing. They shall record each remote sensing measurement and use the data thus collected to assess real-world pollutant and noise emissions of their vehicle fleet. The collected data shall be evaluated in anonymised form and by groups of comparable vehicles. Member States shall collect data in such a way that high-emitting vehicles can be identified and verified accordingly.**

~~2. Member States shall use the results of such remote sensing to identify high-emitting vehicles. However, a vehicle shall not be considered to have failed or passed a roadside inspection on the basis of a single remote sensing measurement~~.

**2. Each Member State shall, based on the remote sensing data, establish the emission [level][threshold] for exhaust and noise for high-emitting vehicles in the relevent categories assessed by the Member State.**

**Member States may define further subgroups of vehicles with comparable emission characteristics.**

**Member States shall take verification measures for vehicles detected as high-emitting vehicles.**

**In the case of plume chasing, Member States shall verify the exhaust emissions of any vehicle that, based on the plume chasing measurement of that vehicle, is suspected to be a high-emitting vehicle. The verification shall take place immediately after a plume chasing measurement, as part of a technical roadside inspection carried out in accordance with Article 10, including a noise or exhaust emission test or both in accordance with point 3, item 8 of Annex II.**

**In the case of stationary remote sensing,** Member States shall ~~take the measures necessary to~~ verify the exhaust emissions, the noise level or both of any vehicle that, based on remote sensing data of at least three measurements of that vehicle within a period of **[**six months**] has been assessed to be a high-emitting vehicle**~~, is suspected to emit above a certain level. For exhaust emissions, that level shall be double the average level for vehicles belonging to the same vehicle category, emission class, and having the same type of ignition, namely positive or compression ignition. For noise, the level shall be 3 dB above the average level for vehicles belonging to the same vehicle category.~~ Such verification by Member States may take place as follows:

(a) immediately after a remote sensing measurement, as part of a technical roadside inspection carried out in accordance with Article 10, including a noise or exhaust emission test or both in accordance with point 3, item 8 of Annex II;

(b) within 15 days from the last remote sensing measurement in a testing centre referred to in Article 12 of Directive 2014/45/EU, for vehicles registered in the Member State where the remote sensing measurements took place, following notification of the owner by the competent authority within five days from the last remote sensing measurement.

**For vehicles of category L, Member States shall determine the appropriate methods of verifying exhaust emissions.**

3. Regarding **high-emitting** vehicles registered in another Member State, the competent authority shall notify the competent authority of the Member State of registration of the remote sensing measurements and of any subsequent technical roadside inspection, through the contact points referred to in Article 17 of this Directive. Where no subsequent roadside inspection took place, the Member States of registration shall request the holder of the vehicle registration certificate to present the vehicle in any testing centre referred to in Article 12 of Directive 2014/45/EU at the latest 45 days after the notification received from the Member State where the remote sensing measurements took place.

4. Member States may also verify the exhaust emissions, the noise level, or both, of any **high-emitting** vehicle ~~that is suspected to emit more than double, or more than 3 dB above, the average levels referred to in paragraph 2~~ based on only one or two remote sensing measurements. Such verification shall take **place** in accordance with paragraph **2**~~3~~.';

Related recitals:

(28) For roadside inspections, the screening of the exhaust emissions of large numbers of vehicles by using remote sensing equipment is an effective measure for identifying high-emitting vehicles. It increases detection rates significantly compared to mandatory test methods. Member States should therefore use remote sensing equipment systematically to screen large shares of the vehicle fleet in real on-road conditions. One single remote sensing measurement indicating high emissions above the legal limits could be related to various factors, such as temporary acceleration or a cold engine. However, multiple measurements systematically indicating significantly higher-than-average emissions could indicate a faulty emission control system or unauthorised modifications, such as tampering. Since such defects and modifications generate excessive emissions that pose risks to human health and the environment, they should be repaired, and any tampering should be sanctioned.

(29) As a result, such screening by remote sensing should form part of each Member State's roadside inspection system. For the screening to be effective, each Member State should screen the equivalent of at least **[**30% **]**of its registered fleet of motor vehicles, including **commercial vehicles as well as** cars and motorcycles **but excluding zero-emission vehicles**.

**(29a) Remote sensing cannot substitute a roadside inspection, but can be used to select vehicles for further roadside inspection.** On the basis of **a sufficient amount of** ~~that~~ remote sensing data, Member States should check the exhaust emissions and the noise level of any vehicle that is **a high emitter**~~suspected to emit more than double the average level of similar vehicles, or more than 3 dB above the average level~~. That check could be carried out in a roadside inspection immediately after a remote sensing measurement or in a roadworthiness testing centre in the Member State of registration. For vehicles registered in another Member State, the competent authority where the remote sensing measurement took place should notify the measurement result and the result of any subsequent roadside inspection to the competent authority of **the** Member State of registration. **In the case of plume chasing, immediate verification should take place at the roadside if the vehicle is suspected to be a high emitter.**

**(29b) The verification at the roadside or in an inspection centre should follow the test methods set out in items 8.1 and 8.2 of Annex II to Directive 2014/47/EU and of Annex I to**

**Directive 2014/45/EU, respectively. This means, for example, that where a diesel car or van equipped with a Euro 5b engine or newer [or a Euro VI truck or coach] is suspected to emit fine particles above the legal limit at the time of their approval, their emissions should be verified using particle number measurement in accordance with item 8.2.3.1 in the relevant Annex. For diesel vehicles without particle filter, the emissions will be verified using opacity measurement. [Verification of NOx emission only applies to vehicles of emission classes Euro VI, 6d-TEMP and newer of categories M and N.] Member States should determine the method of verification of exhaust emissions for L-category vehicles. Noise emission should be verified using a sound level meter.**

*NOTE: A related change is suggested in Annex II item 8.1.1. (noise suppression system) of the RSI-proposal.*

(6) in Article 5, paragraphs 1 and 2 are replaced by the following:

'1. For vehicles referred to in Article 2(1), points (a), (b), (c) and (d), Member States shall carry out a total number of initial technical roadside inspections, per calendar year, corresponding to at least 5 % of the total number of those vehicles that are registered in their territory.

2. For vehicles referred to in of Article 2(1), point (aa), Member States shall carry out a total number of initial technical roadside inspections, per calendar year, corresponding to at least **1**~~2~~ % of the total number of those vehicles that are registered in their territory.';

(7) in Article 6, paragraph 1 is replaced by the following:

'For the attribution of a risk profile to an undertaking, Member States may use the criteria set out in Annex I. That information shall be used to perform checks on undertakings with a high risk rating score more closely and more often. The risk rating system shall be operated by the competent authorities of the Member States.

For vehicles referred to in Article 2(1), points (a) to (c), Member States shall ensure that the information concerning the number and severity of deficiencies set out in Annex II and, where applicable, Annex III to this Directive found on vehicles operated by individual undertakings is introduced into the risk rating system established pursuant to Article 9 of Directive 2006/22/EC.';

(8) in Article 7, paragraph 1 is replaced by the following:

'1. Member States shall require drivers to have at their disposal the roadworthiness certificate corresponding to the most recent periodic roadworthiness test ~~in electronic format, or a certified printout thereof,~~ and the report of the most recent technical roadside inspection**. For the case referred to in Article 4(4) of Directive 2014/45/EU, Member States shall require drivers to have at their disposal in addition the EU temporary roadworthiness**

**certificate**. Member States shall require their authorities to accept electronic evidence of such roadworthiness tests and inspections.';

(9) Article 9 is replaced by the following:

*'Article 9*

**Selection of vehicles for initial technical roadside inspection**

When identifying vehicles to be subject to an initial technical roadside inspection, inspectors may select, as a priority, vehicles operated by undertakings with a high-risk profile in accordance with the criteria set out in Annex I to this Directive or as referred to in Directive 2006/22/EC. Vehicles may also be selected randomly for inspection, or where there is a reasonable suspicion that the vehicle presents a risk to road safety or to the environment, including on the basis of remote sensing.';

(10) in Article 10, paragraph 1, the second subparagraph is amended as follows:

(a) point (a) is replaced by the following:

'(a) shall check the latest roadworthiness certificate and technical roadside inspection report, where available, in accordance with Article 7(1) and Article 18a(1);';

(b) point (c) is replaced by the following:

'(c) shall carry out a visual assessment of the securing of the vehicle's cargo in accordance with Article 13;';

(11) Article 13 is replaced by the following:

*'Article 13*

**Inspection of cargo securing**

1. During roadside inspections, vehicles shall be subject to an inspection of their cargo securing in accordance with Annex III, in order to ensure that the cargo is secured in such a way that it does not interfere with safe driving, or pose a threat to life, health, property or the environment. Checks shall be carried out to verify that during all kinds of operation of the vehicle, including emergency situations or uphill starting manoeuvres:

(a) loads can only minimally change their position relative to each other, against walls or surfaces of the vehicle;

(b) loads cannot leave the cargo space or move outside the loading surface.

2. Without prejudice to the requirements applicable to the transport of certain categories of goods, such as goods covered by Directive 2008/68/EC of the European Parliament and of the Council******, cargo securing and inspection of the securing of cargo shall be carried out in accordance with the principles and, where appropriate, the standards laid down in

Section I of Annex III to this Directive. The latest version of the standards laid down in point 5 of that Section may be used.

3. The follow-up procedures referred to in Article 14 shall also apply in the case of major or dangerous deficiencies related to cargo securing.

4. Member States shall ensure that personnel involved in cargo securing checks are appropriately trained for that purpose.

****** Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods (OJ L 260, 30.9.2008, p. 13, ELI: http://data.europa.eu/eli/dir/2008/68/oj).';

(12) in Article 14, the following paragraph 4 is added:

'4. Obvious tampering or manipulation of any component of the vehicle, including its emission control system, silencer and safety-related systems, shall be considered as major or dangerous deficiencies and shall be punishable by effective, proportionate, dissuasive and non-discriminatory penalties.';

(13) in Article 16, paragraph 2 is replaced by the following:

'2. On completion of a more detailed inspection, the inspector shall draw up a report in accordance with Annex IV. Member States shall ensure that the driver of the vehicle is provided with an electronic copy of the inspection report.';

(14) in Article 18, paragraph 1 is replaced by the following:

'1. In cases where major or dangerous deficiencies, or deficiencies resulting in a restriction or prohibition on the use the vehicle, are found in a vehicle not registered in the Member State of inspection, the contact point shall notify the results of the inspection to the contact point of the Member State of registration of the vehicle. That notification shall contain the elements of the roadside inspection report as set out in Annex IV and shall be communicated to the contact point of the Member State of registration through the messaging system (RSI system) referred to in Article 3 of Commission Implementing Regulation (EU) 2017/2205*******.

The Commission shall adopt implementing acts laying down detailed rules concerning the procedures for the notification of vehicles with major or dangerous deficiencies to the contact point of the Member State of registration pursuant to the first subparagraph of this Article. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 23(2).

******* Commission Implementing Regulation (EU) 2017/2205 of 29 November 2017 on detailed rules concerning the procedures for the notification of commercial vehicles with major or dangerous deficiencies identified during a technical roadside inspection, (OJ L 314, 30.11.2017, p. 3, ELI: http://data.europa.eu/eli/reg_impl/2017/2205/oj).';

PUBLIC

(15) the following Article 18a is inserted:

'*Article 18a*

**Exchange of data between Member States' authorities**

1. Member States shall assist one another in the implementation of this Directive. They shall exchange information and data in particular with the aim of checking, at the time of roadside inspection of a vehicle, its legal and technical status, where necessary, in the Member State in which it is registered.

   Member States shall provide access to data regarding the content of the certificates of conformity, the last roadworthiness certificate, any technical roadside inspection report, and the odometer history of the vehicle, stored in national databases, to the competent authorities of other Member States.

   Member States shall interconnect their electronic systems on roadworthiness certificates and on odometer history through the MOVE-HUB electronic system developed by the Commission, in such a way that the competent authorities of any Member State are able to consult the relevant database or national vehicle register of any other Member State in real time.

2. By [PLEASE INSERT DATE: 2 years after the entry into force of this directive], the Commission shall adopt implementing acts laying down the necessary arrangements for the implementation of the functionalities of the MOVE-HUB electronic system and specifying the minimum requirements for the format and content of the information and data to be exchanged by Member States regarding the vehicles subject to roadside inspections. Those implementing acts shall ensure the protection of personal data and shall be adopted in accordance with the examination procedure referred to in Article 23(2).

3. The electronic systems interconnections provided for in paragraph 1 shall be operational within one year after the adoption of the implementing acts referred to in paragraph 2.';

(16) Article 20 is replaced by the following:

'*Article 20*

**Communication of information to the Commission**

1. By 31 March 2030 and by 31 March every three years thereafter, Member States shall communicate to the Commission, through the online reporting platform referred to in Article 28 of Regulation (EU) 2018/1999 of the European Parliament and of the Council********, ('e-platform'), the data collected relating to each of the previous three calendar years and concerning the vehicles inspected in their territory. Those data shall include the following information, per calendar year:

   (a) the total number of vehicles inspected;

   (b) the number of vehicles inspected per category;

(c) the country of registration of each vehicle inspected;

(d) in the case of more detailed inspections, the areas checked and the items failed, in accordance with point 10 of Annex IV of this Directive;

(e) the results of the remote sensing measurements carried out in accordance with Article 4a of this Directive.

The first report shall cover the years 2027, 2028 and 2029, separately.

2. The Commission shall adopt implementing acts laying down detailed rules concerning the format for communicating the data referred to in paragraph 1 through the e-platform. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 23(2). Until the entry into force of such rules, Member States shall use the standard reporting form set out in Annex V.

The Commission shall report the data collected to the European Parliament and to the Council.

---

******** Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (OJ L 328, 21.12.2018, p. 1, ELI : http://data.europa.eu/eli/reg/2018/1999/oj).';

(17) Article 21 is amended as follows:

(a) the second and third indents are replaced by the following:

'– update point 3 of Annex II in respect of methods in the event that more efficient and effective test methods become available, without extending the list of items to be tested;
– adapt point 3 of Annex II, following a positive assessment of the costs and benefits involved, in respect of the list of test items, methods, reasons for failure and assessment of deficiencies in the event of a modification of mandatory requirements relevant for type-approval in Union safety or environmental legislation;';

(b) the following fourth and fifth indents are added:

'– set common [remote sensing] limits for exhaust or noise emissions, or for both, to be used to identify high-emitting vehicles, based on the results communicated by the Member States to the Commission in accordance with Article 20(1), point (e); different limits may be set for identifying vehicles with defective emission control systems and vehicles with tampered emission control systems;
– specify the methods for the particle number (PN) measurement of positive ignition engines and for the nitrogen oxides ($NO_X$) measurement of compression and positive ignition engines required pursuant to Section 8.2 of point 3 of Annex II.';

(18) Article 24 is replaced by the following:

‘*Article 24*

**Reporting**

By [two years from the date referred to in Article 20(1)], the Commission shall submit a report to the European Parliament and the Council on the implementation and effects of this Directive. The report shall analyse, in particular, its effect in terms of improvement of road safety and reduction in emissions.’;

(19) Annexes II, III, IV, and V are amended in accordance with Annex II to this Directive.

*Article 3*

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by [PLEASE INSERT DATE: 2 years following the entry into force of this Directive]. They shall immediately communicate the text of those measures to the Commission.

   When Member States adopt those measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main measures of national law which they adopt in the field covered by this Directive.

*Article 4*

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

*Article 5*

This Directive is addressed to the Member States.

Done at Brussels,

PUBLIC

## ANNEX I

Annexes I, III and IV to Directive 2014/45/EU are amended as follows:

(1) Annex I is amended as follows:

in point 1, the second paragraph is replaced by the following:

> ‘The test must cover at least the items listed in point 3 provided that the systems and components are fitted to the vehicle. The test may also include a verification as to whether the relevant parts and components of that vehicle correspond to the required safety and environmental characteristics that were in force at the time of approval or, where applicable, at the time of retrofitting.’;

in point 2, the following point is added:

> ‘(10) Electronic safety systems.’;

point 3 is amended as follows:

(i) the heading and the introduction are replaced by the following:

> ‘3. CONTENTS AND METHODS OF TESTING, REASONS FOR FAILURE, AND ASSESSMENT OF DEFICIENCIES OF VEHICLES
>
> The test shall cover at least the items, and use the minimum standards and the recommended methods, listed in the table set out in this point.
>
> The components and systems of the vehicle shall be inspected visually or by means of the electronic interface, or both, where applicable, using the following inspection criteria:
>
> the inspection of the fitment includes the evaluation of any relevant diagnostic trouble codes and an examination of whether the fitted systems and components comply for example, with the following:
>
> – the given design, specified attachment/number, specified circuit, required marking;
> – the valid software version including the integrity feature;
>
> the inspection of the condition includes an examination of whether the fitted systems and components are for example:
>
> damaged, corroded, or aged;
>
> properly fastened, secured, assembled, and routed;
>
> operating freely and easily;
>
> indicating failure via the malfunction indicator lamp (MIL) or, where applicable, via the on-board monitoring (OBM) system;

ready to be inspected (readiness **of the OBD system**);

the inspection of the functioning includes an examination of the actuation and/or activation including that of the pedals, levers, switches, or operating devices, which initiate an action and of the electronically controlled systems and components, for example, actuators, to ensure that they are operating correctly in terms of timing and function;

the inspection of the performance and efficiency is a metrological inspection of a component or system for compliance with, or achievement of, specified limit values, which may also include calculation, such as the following:

– testing the brakes on a brake tester and calculating the efficiency (where applicable by means of reference values);
– activation of a safety system and evaluating sensor values and/or measuring the performance with external test equipment.

As regards electronic periodic technical inspection (ePTI) using the electronic vehicle interface~~, an ePTI system list is defined in EN ISO 20730-3:2021~~. Those electronic safety systems are referred to in item 10 of the table set out in this point.

For each vehicle system and component subject to testing, the assessment of deficiencies is to be carried out, on a case-by-case basis in accordance with the criteria laid down in the table set out in this point.

Deficiencies not listed in this Annex shall be assessed in terms of the risks that they pose to road safety.';

(ii) in the table, items 1.1.3 to 1.1.6 are replaced by the following:

'

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 1.1.3. Vacuum pump or compressor and reservoirs | Visual inspection of the components at normal working pressure. Check time required for vacuum or air pressure to reach safe working value and function of warning device, multi-circuit protection valve and pressure relief valve.<br><br>Brake application means depression of the brake pedal/lever which allows the full flow of air/fluid application pressure to the brake assemblies. | (a) Insufficient pressure/vacuum to give assistance for at least four brake applications after the warning device has operated (or gauge shows an unsafe reading);<br><br>at least two brake applications after the warning device has operated (or gauge shows an unsafe reading). | | X<br><br>X |
| | | (b) Time taken to build up air pressure/vacuum to safe working value is too long according to the require-ments[1] | | X | |
| | | (c) Multi-circuit protection valve or pressure relief valve not working. | | X | |
| | | (d) Air leak causing a noticeable drop in pressure or audible air leaks.<br><br>Air leak causing a critical drop in pressure. | | X | <br><br>X |
| | | (e) External damage likely to affect the function of the braking system.<br><br>Secondary braking performance not met. | | X | <br><br>X |
| 1.1.4. Low pressure warning device | Functional check | Malfunctioning or defective warning device.<br><br>Low pressure not identifiable. | X | <br><br>X | |
| 1.1.5. Hand-operated brake control valve | Visual inspection of the components while the braking system is operated. | (a) Control cracked, damaged or excessively worn. | | X | |
| | | (b) Control insecure on valve or valve insecure. | | X | |
| | | (c) Loose connections, defective fixing, or leaks in system. | | X | |
| | | (d) Unsatisfactory operation. | | X | |

| | | | | | |
|---|---|---|---|---|---|
| 1.1.6. Parking brake (activator, lever control, parking brake ratchet) | Visual inspection of the components while the braking system is operated. | (a) Ratchet not holding correctly. | | X | |
| | | (b) Wear at lever pivot or in ratchet mechanism. | X | | |
| | | Excessive wear. | | X | |
| | | (c) Excessive movement of lever indicating incorrect adjustment. | | X | |
| | | (d) Activator missing, damaged or inoperative. | | X | |
| | | (e) Incorrect functioning, warning indicator shows malfunction | | X | |

PUBLIC

’;

(iii) in the table, item 1.1.13 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.1.13. Brake linings and pads | Visual inspection. | (a) Lining or pad excessively worn (minimum mark reached). | | X | |
| | | Lining or pad excessively worn (minimum mark not visible). | | | X |

| | | | | | |
|---|---|---|---|---|---|
| | | (b) Lining or pad contaminated (oil, grease etc.).<br>Braking performance affected. | | X | <br>X |
| | | (c) Lining or pad missing or wrongly mounted, or of obviously incorrect type. | | | X |
| | | (d) Wear indicator electrical harness disconnected or damaged | X | | |

’;

(iv) in the table, item 1.1.18 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.1.18. Slack adjusters and indicators | Visual inspection of the components while the braking system is operated, if possible. | (a) Adjuster damaged, seized or having abnormal movement, excessive wear, or incorrect adjustment. | | X | |
| | | (b) Adjuster defective. | | X | |
| | | (c) Incorrectly installed or replaced. | | X | |

’;

(v) in the table, item 1.1.19 is deleted;

(vi) in the table, item 1.1.23 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.1.23. Overrun brake | Visual inspection and by operation | (a) Not working properly, for example, stroke of the drawbar exceeds 2/3 of the total overrun travel | | X | |
| | | (b) Breakaway cable defect or missing | | X | |

’;

(vii) in the table, items 1.2.1 and 1.2.2 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.2.1. Performance | During a test on a brake tester or, if impossible, during a road test, apply the brakes progressively up to maximum effort.<br><br>It must be ensured, where possible, that the mechanical service brakes are inspected without interference/blending of regenerative braking or other continuous braking. | (a) Inadequate braking effort on one or more wheels.<br><br>~~Or, in the case of testing on the road, the vehicle deviates excessively from a straight line and/or excessive vibration is produced at the service brake pedal/lever~~.<br><br>No braking effort on one or more wheels. | | X<br><br>~~X~~<br><br>X |
| | | (b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from the other wheel on the same axle. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line.<br><br>Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles. | | X<br><br>X |
| | | (c) No gradual variation in brake effort (grabbing). | | X | |
| | | (d) Abnormal lag in brake operation of any wheel. | | X | |
| | | (e) Excessive fluctuation of brake force during each complete wheel revolution. **Or, in the case of testing on the road, excessive vibration is produced at the service brake pedal/lever.** | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 1.2.2. Efficiency | Test with a brake tester or, if one cannot be used for technical reasons, by a road test using a deceleration recording instrument to establish the braking ratio which relates<br>(a) to the maximum authorised mass or,<br>(b) in the case of semi-trailers, to the sum of the authorised axle loads, or<br>(c) to reference values.<br>Vehicles or a trailer with a maximum permissible mass exceeding 3,5 tonnes must be inspected following the standards given by ISO 21069 or equivalent methods. | Does not give at least the minimum figure as follows ([1]):<br>1. Vehicles registered for the first time after 1/1/2012:<br>— Category $M_1$: 58 %<br>— Categories $M_2$ and $M_3$: 50 %<br>— Category $N_1$: 50 %<br>— Categories $N_2$ and $N_3$: 50 %<br>— Categories $O_2$, $O_3$ and $O_4$:<br>— for semi-trailers: 45 % ([2])<br>— for draw-bar trailers: 50 % | | X | |
| | For vehicles not inspected following the standards given by ISO 21069 or equivalent methods, if the minimum figure of braking ratio is not achieved, at least meaningful brake testing must be performed. Meaningful brake testing is performed if brake efficiency is below the service, secondary or parking values prescribed in 1.2.2 or 1.3.2 or 1.4.2 but all the following conditions are met:<br>— the braking system is in good condition with no obvious defects,<br>— wheels of all axles lock because adhesion between the tyre and brake tester surface was exhausted during the brake test; if wheels on some axles do not lock, it must be safely concluded that the braking efficiency values prescribed in 1.2.2 or 1.3.2 or 1.4.2 would be achieved when the vehicle is loaded,<br>— brake actuation level by the inspector must always be proportional to the | 2. Vehicles registered for the first time before 1/1/2012:<br>— Categories $M_1$, $M_2$ and $M_3$: 50 % ([3])<br>— Category $N_1$: 45 %<br>— Categories $N_2$ and $N_3$: 43 % ([4])<br>— Categories $O_2$, $O_3$ and $O_4$: 40 % ([5]) | | X | |
| | | 3. Other categories<br>Categories L (both brakes together):<br>— Category L1e: 42 %<br>— Categories L2e, L6e: 40 %<br>— Category L3e: 50 %<br>— Category L4e: 46 %<br>— Categories L5e, L7e: 44 %<br><br>Category L (rear wheel brake):<br>all categories: 25 % of the total vehicle mass<br><br>Category T: 40%<br><br>~~Less than 50 % of the above values reached~~. | | X | ~~X~~ |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | current load of the axle.<br>Information on system values may be retrieved using electronic vehicle interface.<br>Road tests should be carried out under dry conditions on a flat, straight road. In cases where vehicles of R or T category are tested on the road, meaningful brake testing is performed if all the above conditions are met.<br>In case of doubt, the braking efficiency shall be demonstrated in loaded or partially loaded condition. | **Less than 50 % of the above values reached** | | | **X** |

PUBLIC

’;

(viii) in the table, item 1.3.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.3.1. Performance | If the secondary braking system is separate from the service braking system, use the method specified in 1.2.1.<br>It must be ensured that, where possible, the mechanical brakes are inspected without interference/blending of regenerative braking or other continuous braking. | (a) Inadequate braking effort on one or more wheels. | | X | |
| | | No braking effort on one or more wheels. | | | X |
| | | (b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from another wheel on the same axle specified. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line. | | X | |
| | | Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles. | | | X |
| | | (c) No gradual variation in brake effort (grabbing). | | X | |

’;

(ix) in the table, item**s** 1.4.1 **and 1.4.2 are**~~is~~ replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.4.1. Performance | Apply the brake during a test on a brake tester or by road test. | Brake inoperative on one side or, in the case of testing on the road, the vehicle deviates excessively from a straight line.<br>Less than 50 % of the braking effort values as referred to in point 1.4.2 reached in relation to the vehicle mass during testing. | | X | X |
| 1.4.2. Efficiency | Test with a brake tester. If not possible, then by a road test using either an indicating or deceleration recording instrument or with the vehicle on a slope of known gradient **or using the wheel play detector**. | Does not give, for all vehicles, a braking ratio of at least 16 % in relation to the maximum authorized mass or, for motor vehicles, of at least 12 % in relation to the maximum authorised combination mass of the vehicle, whichever is the greater.<br>Less than 50 % of the above braking effort values reached. | | X | X |

’;

(x) in the table, item 1.5 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.5. Endurance braking system performance | Visual inspection and, where possible, test whether the system functions, i.e. by road test. | (a) Malfunction indicator indicates a fault. | | X | |
| | | (b) System not functioning. | | X | |

’;

(xi) in the table, item 1.6 is deleted;

(xii) in the table, item 1.7 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.7. Electric regenerative braking | Visual inspection of the indicator of electric regenerative braking, and, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, by using the electronic vehicle interface, or by road test. | (a) Warning device indicates malfunctioning. | | X | |
| | | (b) The system does not noticeably decelerate the vehicle **(except when the battery is full)**, or the charge indicator (if fitted) does not display “on charge” when regeneration is activated. | | X | |
| | | (c) Vehicle interface indicates system malfunction. | | X | |

’;

(xiii) in the table, item 2.6 is deleted;

(xiv) in the table, items 4.1.1, 4.1.2 and 4.1.3 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.1.1. Condition and operation | Visual inspection and by operation **or by using the electronic vehicle interface**. | (a) Defective or missing light source. | | | |
| | | Multiple light sources (in the case of LED, up to 1/3 not functioning). | X | | |
| | | Seriously affected visibility **(single light source, or, in the case of LED, less than 2/3 functioning)**. | | X | |
| | | (b) Slightly defective projection system (reflector and lens). | X | | |
| | | Heavily defective or missing projection system (reflector and lens). | | X | |
| | | (c) Lamp not securely attached. | | X | |
| | | (d) System indicates failure for example via the electronic vehicle interface. | | X | |
| 4.1.2. Alignment | Determine the horizontal and vertical aim of each headlamp on dipped beam using a headlamp aiming device. | (a) Aim of a headlamp not within limits laid down in the requirements[1]. If there are no specific requirements, the following reference values shall be used, where h is the height of headlamp (lowest point of the light-emitting surface): | | X | |
| | | (i) M,N ~~,O~~ categories ~~(Regulation No 48 UN/ECE~~ | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | ~~[2016/1723], point 6.2.6.1.2)~~:<br>— h ≤ 0,8m: upper limit -0.5%; lower limit -2.5%<br>— 0.8 < h ≤ 1m: upper limit -0.5%; lower limit -3%<br>— h > 1m: upper limit -1% e inferior -3%<br>— h > 1.2m, category N3G (all-terrain): upper limit -1.5%; lower limit -3.5%<br>(ii) L category (Commission Delegated Regulation (EU) No 3/2014~~ and Regulation No 53 UN/ECE~~):<br>— upper limit -0.5%<br>— h ≤ 0,8m: lower limit -2,5%<br>— h > 0.8m: lower limit -3,0% (-2,5% on L3e category)<br>(iii) T category ~~(Regulation No 86 UN/ECE)~~:<br>— upper limit -0.5%<br>— h ≤ 1,2m: lower limit -4%<br>h > 1,2m: lower limit -6% | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 4.1.3. Switching | Visual inspection and by operation | (a) Switch does not operate in accordance with the requirements[1] (Number of headlamps illuminated at the same time)<br><br>Maximum permitted light brightness to the front exceeded. | X<br><br> | <br><br>X | |
| | | (b) Function of control device impaired. | | X | |

’;

(xv) in the table, item 4.1.5 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.1.5. Manual levelling devices (where mandatory) | Visual inspection and by operation, if possible, ~~or using the electronic vehicle interface.~~ | (a) Device not operating **or missing**. | | X | |
| | | (b) device cannot be operated from driver's seat. | | X | |

’;

(xvi) in the table, item 4.2.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.2.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br><br>Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective.<br><br>Seriously affected visibility **of the vehicle** (in the case of LED, less than 2/3 functioning). | X | **X**<br><br><br><br>X | |
| | | (b) Defective lens. | | X | |

| | | | | | |
|---|---|---|---|---|---|
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | X | |

’;

(xvii) in the table, items 4.3.1 and 4.3.2 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.3.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source.<br>Multiple light sources; in the case of LED up to 1/3 not functioning.<br>Single light sources; in the case of LED less than 2/3 functioning.<br>No light source functioning. | X | X | X |
| | | (b) Slightly defective lens (no influence on emitted light).<br>Heavily defective lens (emitted light affected). | X | X | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | X | |
| 4.3.2. Switching | Visual inspection and by operation | (a) Switch does not operate in accordance with the requirements[1].<br>Delayed operation.<br>No operation at all. | X | X | X |
| | | (b) Function of control device impaired. | | X | |

’;

(xviii) in the table, item 4.4.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.4.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br>Multiple light sources (in the case of LED up to 1/3 not functioning).<br>Single light sources; in the case of LED less than 2/3 functioning.<br>No light source functioning. | X | X | X |
| | | (b) Slightly defective lens (no influence on emitted light).<br>Heavily defective lens (emitted light affected). | X | X | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | X | |

’;

(xix) in the table, item 4.5.1 is replaced by the following:

| | | | | | |
|---|---|---|---|---|---|
| 4.5.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source.<br>Multiple light sources (in the case of LED up to 1/3 not functioning).<br>Single light sources; in the case of LED less than 2/3 functioning. | X | X | |
| | | (b) Slightly defective lens (no influence on emitted light).<br>Heavily defective lens (emitted light affected). | X | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off or dazzling oncomingtraffic. | X<br><br>X | | |

’;

(xx) in the table, item 4.6.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.6.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br>Multiple light sources (in the case of LED up to 1/3 not functioning).<br>Single light sources; in the case of LED less than 2/3 functioning. | <br>X<br><br> | <br><br>X | |
| | | (b) Defective lens | X | | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off | X<br> | <br>X | |

’;

(xxi) in the table, item 4.7.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.7.1. Condition and operation | Visual inspection and by operation. | (a) Lamp throwing direct or white light to the rear. | X | | |
| | | (b) Defective or missing light source. (Multiple light source).<br>Defective or missing light source. (Single light source). | X<br> | <br>X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | <br>X | |

’;

(xxii) in the table, item 4.11, the title in the first column of the table is replaced by the following:

‘Electrical wiring (except high-voltage wiring)’;

(xxiii) in the table, item 4.13, the title in the first column of the table is replaced by the following:

‘Battery (or batteries, except high-voltage batteries)’;

(xxiv) the following item 4.14 is inserted:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.14 High-voltage systems | | | | | |
| 4.14.1 Electrical safety | Visual inspection complemented by using the vehicle interface | (a) Indicator or vehicle interface shows system malfunction | | X | |
| | | (b) Software version or -integrity incorrect | | X | |
| 4.14.2 Traction battery cover | Visual inspection. | (a) Slightly deteriorated<br>Heavily deteriorated | X | <br>X | |
| | | (b) Defective attachment<br>Very serious risk of falling off | | X | <br>X |
| | | (c) Obstructed ventilation port(s) | X | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 4.14.3 Traction battery | Visual inspection, complemented by using the vehicle interface (where made possible by the technical characteristics of the vehicle, and where the necessary data is available). | (a) Marks of leakage | | X | |
| | | Leaking (presence of droplets) | | | X |
| | | (b) Incorrect software or hardware, or readiness-code not active | | X | |
| 4.14.4 High voltage electrical wiring | | | | | |
| 4.14.4.1 High voltage wiring harness and connector | Visual inspection and by operation with the vehicle over a pit or on a hoist, including inside the engine compartment and the boot (where applicable) | (a) Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |
| | | Risk of short-circuit fault | | | X |
| | | (b) Wiring insecure or not adequately secured | X | | |
| | | Fixings loose, touching sharp edges, connectors likely to be disconnected | | X | |
| | | Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected | | | X |
| | | (c) Imminent risk of fire, formation of sparks | | | X |
| 4.14.4.2 Ground braid, including their attachment | Visual inspection and by operation. | Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |
| 4.14.4.3 Ground continuity (X)[2] | Measurement using an ohmmeter | Test not feasible | X | | |
| | | Too high resistance (over 100 Ohms) | | X | |
| 4.14.4.4 Charging inlet cover | Visual inspection and by operation. | Deteriorated | X | | |
| | | Missing | | X | |
| 4.14.4.5 Charging inlet | Visual inspection and by operation. | (a) Deteriorated | X | | |
| | | Trace of beginning of melting or electric arcs | | X | |
| | | (b) Foreign material or moisture | | X | |
| 4.14.4.6 Charging cable | Visual inspection and by operation. | (a) Deteriorated | X | | |
| | | (b) Charging cable not provided | X | | |
| 4.14.5. High voltage electrical and electronical equipment (X)[2] | | | | | |
| 4.14.5.1. High voltage electrical and electronical equipment | Visual inspection and by using the electronic vehicle interface. | (a) Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |

PUBLIC

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (b) Attachment defective | | X | | |
| | | (c) Leaking | | X | | |
| 4.14.5.2. Traction motor | Visual inspection<br><br>Check of operational readiness of the systems by an applicable interface (OBD or OBM)<br><br>Measurement of equipotential bonding, where made possible by the technical characteristics of the vehicle | (a) Shield is deformed, not in-place or damaged, or corroded | | X | | |
| | | (b) Warning marking missing or illegible | | X | | |
| | | (c) Connection of wiring harness insecure or corroded | | X | | |
| | | (d) Electrical insulation damaged or deteriorated<br>likely to cause injury when contacted. | | X | X | |
| | | (e) Fault readiness of the traction motor | | X | | |
| | | (f) Wrong version of type-approved hardware and software not in accordance with the requirements as defined in the ECE R100 | | X | | |
| 4.14.5.3 Electronic converters, motor, and inverter | Visual inspection<br><br>Check of operational readiness of the systems by an applicable interface (OBD or OBM)<br><br>Measurement of equipotential bonding, where made possible by the technical characteristics of the vehicle | (a) Not in accordance with requirements[1] | | X | | |
| | | (b) Inadequately secured | | X | | |
| | | (c) Damaged or corroded components<br>Likely to cause injuries or to fall off | X | <br>X | | |
| | | (d) Shields not in place or damaged | | X | | |
| | | (e) Damaged or deteriorated electrical insulation | | X | | |
| | | (f) Fault readiness of the converter and inverter systems | | X | | |
| | | (g) Wrong version of type-approved hardware and software | | X | | |
| 4.14.6. Insulation resistance (X)[2] | | | | | | |
| 4.14.6.1. Insulation resistance of the vehicle charging inlet and resistance of the protective earthing | Read insulation resistance by the electronic vehicle interface, where made possible by the technical characteristics of the vehicle and where the necessary data is made available | (a) Insulation resistance is not in accordance with requirements or predefined values from the vehicle manufacturer | | X | | |
| | | (b) Resistance of the protective earthing is not in accordance with requirements | | X | | |

PUBLIC

| | | | | | | |
|---|---|---|---|---|---|---|
| 4.14.6.2. Insulation resistance between the high-voltage system and chassis | Visual inspection<br>Read insulation resistance by the electronic vehicle interface, where made possible by the technical characteristics of the vehicle and where the necessary data is made available | (a) Insulation monitoring system shows malfunction | | X | | |
| | | (b) Insulation resistance value not in accordance with requirements | | X | | |
| 4.14.7. Anti-starting system | | | | | | |
| 4.14.7.1. Anti-starting system | Visual inspection and by operation when possible.<br>Functional check by verifying that the vehicle cannot move by itself with the charging cable plugged, and the driver's weight lifted out of the seat | (a) Indicator malfunction | X | | | |
| | | (b) Inoperative, i.e., vehicle can move with connected charging cable or with no driver present | | X | | |

';

(xxv) in the table, item 5.1.3 is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 5.1.3. Wheel bearings | Visual inspection with the vehicle over a pit or on a hoist. Wheel play detectors may be used and are recommended for vehicles having a maximum mass exceeding 3,5 tonnes. Rock the wheel or apply a lateral force to each wheel and note the amount of upward movement of the wheel relative to the stub axle. | (a) Excessive play in a wheel bearing.<br>Directional stability impaired; danger of demolishment. | | X | <br>X |
| | | (b) Wheel bearing too tight, jammed.<br>Danger of overheating; danger of demolishment. | | X | <br>X |
| | | (c) Audible signs of bearing wear or damage. | | X | |

';

(xxvi) in the table, item 5.2.3 is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 5.2.3. Tyres | Visual inspection of the entire tyre by either rotating the road wheel with it off the ground and the vehicle over a pit or on a hoist, or by rolling the vehicle backwards and forwards over a pit. | (a) Tyre size, load capacity, approval mark or speed category not in accordance with the requirements[1] and affecting road safety or environmental performance.<br><br>Insufficient load capacity or speed category for actual use, tyre touches other fixed vehicle parts impairing safe driving. | | X | X |
| | | (b) Tyres on same axle or on twin wheels of different sizes. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (c) Tyres on same axle of different construction (radial/ cross-ply). | | X | |
| | | (d) Any serious damage or cut to tyre. | | X | |
| | | Cord visible or damaged. | | | X |
| | | (e) Tyre tread wear indicator becomes exposed. | | X | |
| | | Tyre tread depth not in accordance with the requirements[1]. | | | X |
| | | (f) Tyre rubbing against other components (flexible anti spray devices). | X | | |
| | | Tyre rubbing against other components (safe driving not impaired) | | X | |
| | | (g) Re-grooved tyres not in accordance with requirements[1]. | | X | |
| | | Cord protection layer affected. | | | X |
| | | (h) Tyre obviously underinflated. | X | | |
| | | **(i) Tyres with a manufacturing date (week year) indicating a use time exceeding 10 years** | | **X** | |

’;

(xxvii) in the table, item 5.3.2.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 5.3.2.1. efficiency testing of damping | Using special equipment and comparing left/ right differences, or based on ~~measurement of~~ oscillation behaviour or damping of the vehicle | (a) Significant difference between left and right. | | X | |
| | | (b) Given minimum values not reached. | | X | |

’;

(xxviii) in the table, items 7.1.3, 7.1.4, 7.1.5 and 7.1.6 are deleted;

(xxix) in the table, item 7.8 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 7.8. Speedometer | Visual inspection or by operation during road test or by using the electronic vehicle interface, or any combination of these. | (a) Not fitted in accordance with the requirements[1]. | X | | |
| | | Missing (if required). | | X | |
| | | (b) Operation impaired. | X | | |
| | | Not operational at all. | | X | |
| | | (c) Not capable of being sufficiently illuminated. | X | | |
| | | Not capable of being illuminated at all. | | X | |

’;

(xxx) in the table, items 7.9 and 7.10 are deleted;

(xxxi) in the table, item 7.11 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 7.11. Odometer, if available | Visual inspection, and/or using electronic interface (OBD or OBM) | (a) Obviously manipulated (fraud) to reduce or misrepresent the vehicle's distance record. | | X | |
| | | (b) Obviously inoperative. | | X | |

’;

(xxxii) in the table, items 7.12 and 7.13 are deleted;

(xxxiii) in the table, items 8.1 and 8.2 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 8.1. Noise | | | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 8.1.1. Noise suppression system | For L-category vehicles powered by internal combustion engines, visual inspection and measurement of noise emitted by stationary vehicle using a sound level meter.<br>For other vehicles, subjective evaluation (unless the inspector considers that the noise level may be borderline, in which case a measurement of noise emitted by stationary vehicle using a sound level meter may be conducted) | (a) Noise levels in excess of those permitted in the requirements[1]. | | X | |
| 8.2. Exhaust emissions | | | | | |
| 8.2.1. Exhaust emissions control equipment | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface (OBD or OBM read-out) | (a) Emission control equipment fitted by the manufacturer absent, modified or obviously defective. | | X | |
| | | (b) Leaks which would affect emission measurements. | | X | |
| | | (c) Warning device malfunctioning, warning indicator / tell-tale inoperative. | | X | |
| | | (d) MIL activated, warning device shows system malfunction. | | X | |
| | | (e) System indicates failure via the electronic vehicle interface. | | X | |
| | | (f) Exhaust emission control unit modified affecting safety and/or the environment. | | X | |
| | | (g) Any other emission relevant control unit modified affecting safety and/or the environment. | | X | |
| | | (h) Presence of electronic devices not authorised by the vehicle manufacturer nor approved during homologation changing signals to or from the engine or pollution control unit(s). | | X | |
| | | (i) OBD or OBM read-out indicating significant malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 8.2.2 Exhaust emission measurement – positive ignition engines | Test procedures:<br><br>For vehicles that had a particle number (PN) limit at type-approval; Euro VI, Euro 6c and newer:<br><br>Particle number measurement in accordance with 8.2.2.1.<br><br>For all vehicles:<br><br>Gaseous emissions test in accordance with 8.2.2.2.<br><br>For vehicles as of emission classes Euro VI, 6d-TEMP and newer:<br><br>$NO_X$ measurement in accordance with 8.2.2.3. | | | | |
| 8.2.2.1 Particle number measurement | Vehicle preparation:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 17]<br><br>Measuring instrument preparation:<br><br>— The device to measure PN is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 17], to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction;<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage. | Measurement result exceeds [to be specified in accordance with the delegated acts referred to in Article 17] ($1/cm^3$) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | Test procedure:<br><br>— The software of the particle counter automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured PN concentration measured at different exhaust system outlets shall be considered as the vehicle's PN concentration;<br><br>— The vehicle operates [as specified in accordance with the delegated acts referred to in Article 17]. In case the engine of a vehicle is not switched on at static conditions then the start/stop system shall be deactivated by the test operator. For hybrid and plug-in hybrid vehicles, the thermal engine shall be switched on;<br><br>— After the probe has been inserted into the tailpipe, the following steps shall be followed:<br>1. A stabilization period of at least 15 seconds with the engine running at idle speed.<br>2. After the stabilisation period, the PN concentration emissions are measured. The duration of the test shall be at least [XX] seconds (total measurement duration) [to be specified in accordance with the delegated acts referred to in Article 17].<br><br>After the completion of the test procedure, the instrument reports (and stores) the PN | PUBLIC | | | |

| | | | | | |
|---|---|---|---|---|---|
| | concentration of the vehicle and a “PASS” or “FAIL” message:<br><br>— If the test result is less than or equal to the limit, the instrument reports a “PASS” message.<br><br>— If the test result is greater than the limit, the instrument reports a “FAIL” message. | | | | |
| 8.2.2.2. Gaseous emissions | Measurement using an exhaust gas analyser in accordance with the requirements[1].<br><br>Measurements not applicable for two-stroke engines. | (a) Either gaseous emissions exceed the specific levels given by the manufacturer; | | X | |
| | | (b) Or, if this information is not available, the CO emissions exceed,<br>(i) for vehicles not controlled by an advanced emission control system,<br>— 4,5 %, or<br>— 3,5 %<br>according to the date of first registration or use specified in requirements[1].<br>(ii) for vehicles controlled by an advanced emission control system,<br>— at engine idle: 0,5 %<br>— at high idle: 0,3 % or<br>— at engine idle: 0,3 % ([7])<br>— at high idle: 0,2 % or<br>— at engine idle: 0,2 % ([8])<br>— at high idle: 0,1 %<br>according to the date of first registration or use specified in requirements[1]. | | X | |
| | | (c) Lambda coefficient outside the range 1 ± 0,03 or not in accordance with the manufacturer's specification; | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 8.2.2.3. $NO_X$ measurement | Vehicle preparation:<br><br>[to be specified in accordance with the delegated acts referred to in Article 17];<br>- […]<br><br>Measuring instrument preparation:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 17 or combined with PN testing above];<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 17];<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 17 or combined with PN testing above]. | Measurement result exceeds [$NO_X$ limit to be specified in accordance with the delegated acts referred to in Article 17]. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 8.2.3 Exhaust emission measurement – compression ignition engines | Test procedures:<br><br>For vehicles as of emission classes Euro 5b and Euro VI and newer:<br><br>Particle number (PN) measurement in accordance with 8.2.3.1<br><br>For vehicles up to emission classes Euro 5a and Euro V:<br><br>Opacity measurement in accordance with 8.2.3.2.<br><br>For vehicles equipped with particle filters, Member States may apply PN measurement in accordance with 8.2.3.1 instead of opacity measurement.<br><br>For vehicles as of emission classes Euro 6d-TEMP and Euro VI and newer:<br><br>$NO_X$ measurement in accordance with 8.2.3.3. | | | | |
| 8.2.3.1 Particle number measurement | Vehicle preparation:<br><br>At the beginning of the test the vehicle's engine should be:<br><br>— Hot, i.e., engine coolant temperature above 60 °C but preferably above 70 °C<br><br>— Conditioned, by operating for a period of time at low idling and/or performing stationary accelerations up to maximum 2 000 rpm engine speed or by driving. The recommended total conditioning time is at least 300 seconds.<br><br>During the test, the vehicle shall not be performing an active particulate filter regeneration.<br><br>A fast pass test is possible with engine coolant temperature below 60 °C. However, if the vehicle fails to pass the test, the | Measurement result exceeds 250 000 ($1/cm^3$)<br><br>For vehicles up to emission class Euro 5a and Euro V, equipped with particle filters, Member States may apply a limit up to 1 000 000 ($1/cm^3$) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | test shall be repeated, and the vehicle should fulfil the requirements set for the engine coolant temperature and the conditioning.<br><br>Measuring instrument (as specified in Sections 3, 4, and 5 of Commission Recommendation (EU) 2023/688, as adopted on 20 March 2023) preparation:<br><br>— The instrument is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument as defined in Section 5 of Commission Recommendation (EU) 2023/688, as adopted on 20 March 2023, to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction;<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— The software of the particle counter automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured PN concentration measured at different exhaust system outlets shall be considered as the vehicle's PN concentration;<br><br>— The vehicle operates at low idling. In case the engine of a vehicle is not switched on at static conditions then the start/stop system shall be deactivated by the test operator. For hybrid and plug-in hybrid vehicles, the thermal engine shall be switched on; | | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | — After the probe has been inserted into the tailpipe, the following steps shall be followed:<br>1. A stabilization period of at least 15 seconds with the engine running at idle speed. Optionally, before the stabilization period 2-3 accelerations up to maximum 2 000 rpm engine speed are performed,<br>2. After the stabilisation period, the PN concentration emissions are measured. The duration of the test shall be at least 15 seconds (total measurement duration). The test result shall be the average PN concentration of the measurement duration. If the measured PN concentration is more than two times the limit, the measurement may stop immediately before waiting for 15 seconds to elapse. The test result shall be reported.<br>After the completion of the test procedure, the instrument reports (and stores) the average PN concentration of the vehicle and a "PASS" or "FAIL" message:<br>— If the test result is less than or equal to the limit, the instrument reports a "PASS" message.<br>— If the test result is greater than the limit, the instrument reports a "FAIL" message. | | | | |
| 8.2.3.2. Opacity<br>Vehicles registered or put into service before 1 January 1980 are exempted from this requirement | Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged and, if specified in accordance with the type-approval regulations, reading of OBD in accordance with the manufacturer's recommendations and other requirements.<br>Vehicle preconditioning:<br>1. Vehicles may be tested without preconditioning, although for safety reasons checks should be made that the engine is warm and in a satisfactory mechanical condition. | (a) For vehicles registered or put into service for the first time after the date specified in requirements[1].<br>opacity exceeds the level recorded on the manufacturer's plate on the vehicle; | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | 2. Precondition requirements:<br>(i) Engine shall be fully warm, for instance the engine oil temperature measured by a probe in the oil level dipstick tube to be at least 80 °C, or normal operating temperature if lower, or the engine block temperature measured by the level of infrared radiation to be at least an equivalent temperature. If, owing to the vehicle configuration, this measurement is impractical, the establishment of the engine's normal operating temperature may be made by other means, for example by the operation of the engine cooling fan.<br>(ii) Exhaust system shall be purged by at least three free acceleration cycles or by an equivalent method.<br>Test procedure:<br>Engine and any turbocharger fitted, to be at idle before the start of each free acceleration cycle. For heavy-duty diesels, this means waiting for at least 10 seconds after the release of the throttle.<br>To initiate each free acceleration cycle, the throttle pedal must be fully depressed quickly and continuously (in less than one second) but not violently, so as to obtain maximum delivery from the injection pump. | (b) Where this information is not available or requirements[1] do not allow the use of reference values,<br>— for naturally aspirated engines: 2,5 $m^{-1}$,<br>— for turbo-charged engines: 3,0 $m^{-1}$, or<br>— for vehicles identified in requirements[1] or first registered or put into service for the first time after the date specified in requirements[1]:<br>1,5 $m^{-1}$ ([9])<br>or 0,7 $m^{-1}$ ([8]) | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | During each free acceleration cycle, the engine shall reach cut-off speed or, the speed specified by the manufacturer or, if this data is not available, then two thirds of the cut-off speed, before the throttle is released. This could be checked, for instance, by monitoring engine speed or by allowing a sufficient time to elapse between initial throttle depression and release, which in the case of vehicles of categories $M_2$, $M_3$, $N_2$ and $N_3$, should be at least two seconds.<br><br>Vehicles shall only be failed if the arithmetic means of at least the last three free acceleration cycles are in excess of the limit value. This may be calculated by ignoring any measurement that departs significantly from the measured mean, or the result of any other statistical calculation that takes account of the scattering of the measurements. Member States may limit the number of test cycles.<br><br>To avoid unnecessary testing, Member States may fail vehicles which have measured values significantly in excess of the limit values after fewer than three free acceleration cycles or after the purging cycles. Equally to avoid unnecessary testing, Member States may pass vehicles which have measured values significantly below the limits after fewer than three free acceleration cycles or after the purging cycles. | | | | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| 8.2.3.3. $NO_X$ measurement | Vehicle preparation:<br><br>Prior to testing, the vehicle's exhaust aftertreatment system shall be warmed up, to the conditions that allow effective abatement of $NO_X$ emissions by the selective catalytic reduction (SCR) unit of the vehicle by at least a 5-minute drive or an equivalent method. Once the condition is reached, the vehicle shall not be turned off and the measurement shall be performed within 3 minutes for $M_1$ and $N_1$ vehicles and within 3.5 minutes for $M_2$, $M_3$, $N_2$ and $N_3$ vehicles. Where possible, the vehicle's readiness to be tested shall be ascertained by checking the indicator lamp on the dashboard or via the vehicle interface (OBD or OBM read-out).<br><br>During the test, the vehicle shall not be performing an active particulate filter regeneration.<br><br>Measuring instrument preparation:<br><br>— The device to measure $NO_X$ emissions is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 17] to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction;<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure: | Measurement result exceeds 40 ppm | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | — The software of the $NO_X$ analyser automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured $NO_X$ concentration measured at different exhaust system outlets shall be considered as the vehicle's $NO_X$ concentration;<br><br>— The vehicle operates at low idling;<br><br>— After the probe has been inserted into the tailpipe, the following steps shall be followed:<br>1. A stabilization period of at least 15 seconds with the engine running at idle speed.<br>2. After the stabilisation period, the $NO_X$ concentration emissions are measured. The duration of the test shall be at least 15 seconds (total measurement duration). The test result shall be the average $NO_X$ concentration of the measurement duration.<br><br>After the completion of the test procedure, the instrument reports (and stores) the average $NO_X$ concentration of the vehicle and a "PASS" or "FAIL" message:<br><br>— If the test result is less than or equal to the limit, the instrument reports a "PASS" message.<br><br>— If the test result is greater than the limit, the instrument reports a "FAIL" message. | | | | |

PUBLIC

';

(xxxiv) in the table, item 8.4.1, is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 8.4.1. Fluid leaks | Visual inspection | Any excessive fluid leak, other than water, likely to harm the environment or to pose a safety risk to other road users.<br><br>Steady formation of drops that constitutes a very serious risk. | | X | <br><br>X |

’;

(xxxv) in the table, the following item 10 is added:

‘

| | | | | | |
|---|---|---|---|---|---|
| 10. ELECTRONIC SAFETY SYSTEMS | | | | | |
| 10.1. Cornering light<br>Description: during cornering, an extra headlamp is activated. Operates up to 40 km/h, for example in accordance with UNECE-R 48 or UNECE-R 119. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | X | X |
| 10.2 Adaptive cruise control<br>Description: The system maintains the vehicle's speed, depending on the preferred speed and distance to the vehicle in front. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged, or sensors obviously misaligned | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| 10.3 Adaptive deflectors<br>Description: Depending on the vehicle's speed, the air deflectors are adjusted in order to improve driving stability. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.4 Airbag<br>Description: In case of an accident, inflatable airbags reduce the risk of injury by their absorbing effect, for example in accordance with UNECE-R 12; UNECE-R 14; or UNECE-R 16. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or components (for example seat occupancy detection) obviously missing. | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| | | (g) System or components obviously not operating (for example not suitable with the vehicle) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| 10.5 Active Headrest<br>Description: the system reduces the danger of a whiplash injury in the event of a rear end collision by | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| changing the position of the headrest towards the head. | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, where applicable, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br>X |
| 10.6 Active hood<br>Description: by automatically lifting the bonnet, the system ensures a larger collapsible zone in the event of an accident involving a pedestrian. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating (for example outdated), where applicable, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.7 Automatic hold function<br>Description: the system independently holds the vehicle after stopping using the service brake and/or parking brake and automatically releases them when starting. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.8 Automatic headlamp levelling<br>Description: depending on the load and (optional) pitch angle, the system regulates the headlamp's vertical aim, for example in accordance with UNECE-R 121. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.9 Automatic emergency braking system<br>Description: the system independently starts braking in order to avoid a collision with an obstacle or another road user, or to reduce the consequences of an inevitable impact. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged, or sensors obviously misaligned | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operative (for example audio components) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.10 Anti-lock braking system<br>Description: the system automatically prevents wheel-locking during braking by selective reduction of the wheel brake force, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components (for example wheel speed sensor) damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.11 Automatic light<br>Description: depending on the ambient brightness, the system automatically switches on and off the driving light. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.12 Electro-mechanic power steering<br>Description: the supporting power for steering is generated by an electric motor. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating (for example Power assistance not working), or implausible operation (for example inconsistency between the angle of the steering wheel and the angle of the wheels.)<br><br>Steering affected | | X<br><br><br><br><br><br>X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| 10.13 Electronic four-wheel steering Description: two axles are steered, with a steering angle greater than 3° on all steered wheels, for example in accordance with UNECE-R 79 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (a) System or any component missing | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.14 Electronic damping<br>Description: depending on the driving situation, the rebound and compression stage of the shock absorbers is adjusted by the system. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.15 Electronic brake system<br>Description: a brake pedal sensor and/or pressure sensor records the braking request and calculates the optimal brake force for each wheel, so that there is optimal activation of all wheel brakes. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface, or by road test. | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.16 Electronic stability program<br>Description: the system stabilizes the vehicle or the complete vehicle train in critical, dynamic driving situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 140. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component (for example wheel speed sensors) missing | | X | |
| | | (b) System or components (for example wheel speed sensors) damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.17 High beam assist<br>Description: the system automatically activates and | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| deactivates the high beam according to the driving situation and lighting conditions. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.18 Speed limiter<br>Description: While driving, the system prevents exceeding a defined maximum speed. Relevant, if mandatory, for example in accordance with UNECE-R 89 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements. | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation (for example tampered or manipulated, or size of tyres not compatible with calibration parameters, or incorrect set speed, if checked). | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.19 Belt tensioner and belt force limiter<br>Description: In the event of an accident, the seat belt is tensioned to place the passengers in a setpoint position and/or limits the belt force, electrically controlled and, thus, limits the forces acting on the persons for example in accordance with UNECE-R 16 or UNECE-R 94. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing, or not suitable with the vehicle | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, where applicable, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br>X |
| | | (a) System or any component missing | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.20 Taillight switching<br>Description: Depending on operating status and/or failure of the illuminants, lighting functions are taken over by other luminaires. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.21 Bending light<br>Description: during cornering and depending on the steering angle and speed, the light beam is swivelled and/or an additional headlight is activated, for example in accordance with UNECE-R 48; UNECE-R 98; UNECE-R 112; or UNECE-R 123. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.22 Steering assist<br>Description: depending on the driving situation, the steering angle is automatically changed, without intervention by the driver. Relevant if the steering intervention occurs at a speed of more than 15 km/h, for example in accordance with UNECE-R 79. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operative (for example audio components) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.23 Height levelling<br>Description: the system changes the | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| clearance between vehicle chassis and the road. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.24 Emergency braking signal<br>Description: during strong deceleration, hazard warning lights and/or additional luminous surfaces are activated and/or the following traffic is warned by flashing brake lights, for example in accordance with UNECE-R 48 or UNECE-R 13. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (f) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.25 Pre-crash system<br>Description: in a critical driving situation, the vehicle is prepared for the crash so that the risk of injury to the passengers and/or other road users is reduced. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation (for example power windows) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.26 Tyre pressure warning<br>Description: the system detects loss of tyre pressure through integrated | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| sensors and/or by implausible values for wheel speed, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 141. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.27 Traction control<br>Description: the system prevents the drive wheels spinning during acceleration by applying brake force. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.28 Superimposed steering<br>Description: depending on the driving situation, the system varies the transmission ratio of the steering. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating (for example power assistance not working), or implausible operation (for example inconsistency between the angle of the steering wheel and the angle of the wheels.)<br><br>Steering affected | | X | <br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (a) System or any component missing | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.29 Roll over protection (active)<br>Description: in the event of an imminent rollover, support elements are extended to secure the survival space, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 21. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| 10.30 Hydrogen installation<br>Description: the hydrogen is stored in the vehicle and is used to propel the vehicle, either by combustion in an internal combustion engine or by conversion in a fuel cell with an additional electric engine. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.31 Start-up aid<br>Description: aiding start-up, for example by raising the lift axle or by momentarily applying brake pressure or by automatic release of the parking brake. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.32 Trailer stabilization<br>Description: through selective braking of the trailer by the service | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| brakes, the complete vehicle train is stabilised. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.33 Endurance brake<br>Description: an additional braking system that can maintain braking over a period of time without a significant reduction in performance, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144. | Visual inspection (with command activated and not activated, if possible) complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example Insecure connectors or mountings) | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (j) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.34 Differential lock deactivation<br>Description: when this system is activated, the differential locks are unlocked depending on parameters (for example wheel slip, steering angle, speed). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation<br><br><br><br>Steering affected | | X | <br><br><br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.35 Electronically controlled leading and trailing axle<br>Description: the steered axles are additional axles with electronically controlled steering. The steering force is generated by a hydraulic pump or by the lateral force on the wheels. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation<br>Steering affected | | X | <br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| 10.36 Electronic steering damper<br>Description: Steering damping is controlled electronically. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation<br><br>Steering affected | | X | X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.37 Bus stop brake<br>Description: the system ensures the application of brake pressure when stationary, independent of the brake pedal activation. Buses can only start moving when the doors are closed. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.38 Kneeling<br>Description: the system allows a road vehicle to be lowered to make it easier for passengers to board and disembark. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.39 Steering brake<br>Description: during cornering, dosed braking is applied to one or more wheels. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation<br><br><br><br>Steering affected | | X | <br><br><br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.40 Tyre pressure control<br>Description: according to the requirement of the driver, the system regulates the tyre pressure. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.41 Sliding joint stabilisation<br>Description: The articulated joint is stabilised by damping, depending on vehicle speed, cylinder pressure of the articulated dampers, steering and articulation-angle. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.42 Four-wheel parking brake<br>Description: the system applies the | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| maximum brake pressure in the wheel cylinders at all four wheels. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.43 Front-wheel locking device<br>Description: front wheel suspension, which permits lateral inclination of the motorcycle, can be locked and unlocked by an electric actuator. Above a certain speed, it is automatically unlocked. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.44 Adaptive headlights<br>Description: the illumination of the surrounding road area and/or the direct illumination of road users in the danger area in front of the vehicle is optimised by dynamic adaption of the light beams. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.45 Electrically actuated parking brake<br>Description: the parking brake | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| function is triggered or transmitted electronically or electromechanically. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.46 Lane change assistance<br>Description: at a lane change, the system warns the driver about vehicles in the next lane and steers the vehicle back. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.47 Lane keeping assistance<br>Description: the system warns the driver when the vehicle is unintentionally leaving its lane and steers the vehicle back, e.g. in accordance with Regulation (EU) 2019/2144 and Commission Implementing Regulation (EU) 2021/646*. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.48 Automatic eCall<br>Description: the system is triggered automatically by in-vehicle sensors | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| or manually, it transmits a minimum set of data (EN 15722) via mobile communication network and establishes an audio connection based on the (emergency) number between the vehicle passengers and the public safety answering point, in accordance with Regulation (EU) 2015/758 of the European Parliament and of the Council**, and Commission Delegated Regulation (EU) 2017/79***. | necessary data is made available, with the use of electronic interface<br><br>The verification of the minimum set of data (MSD) includes checking whether:<br>- the mandatory fields are filled with plausible information;<br>- the deviation between in-vehicle system (IVS) location and true location is less than 150 meters. The calculation can be done according to point 2.5 of Annex I of Commission Delegated Regulation (EU) 2017/79;<br>- the deviation between the MSD timestamp and the timestamp of the reading is less than 60s. | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device (eCall MIL) shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation:<br><br>- audio components (for example failing echo-test);<br><br>- minimum set of data incorrect | | X | |
| | | (h) Other failure (for example mobile network communication device, electronic control unit, or GPS signal failure)<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | <br><br>X | <br><br><br>X |
| 10.49 Active roll stabilisation<br>Description: via appropriate actuators the system produces a roll movement which counters the vehicle's body roll movement depending on the current driving situation. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.50 Camera monitor<br>Description: the system which generates at least a part of the indirect field of vision by a camera monitor combination (for example in accordance with UNECE-R 46). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.51 Acoustic vehicle alerting<br>Description: at low speed, the system generates an external, specific sound in order to warn, for example pedestrians. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operative, or not respecting type-approved noise levels | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.52 Basic exterior lights<br>Description: the system switches on/switches off the basic lighting devices (for example indicators). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.53 Automated lane keeping system (ALKS)<br>Description: a system which is activated by the driver, and which keeps the vehicle within its lane by controlling the lateral and longitudinal movements of the vehicle for extended periods without the need<br>for further driver input (for example in accordance with UNECE-R 157). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.54 Turning assistant<br>Description: a system to inform the driver of a possible collision with a traffic participant (for example bicycle) near side (for example in accordance with UNECE-R 151). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.55 Tachograph<br>Description: a system to record the driving time, breaks, rest periods as well as periods of other work undertaken by a driver, for example, in accordance with Regulation (EU) No 165/2014 of the European Parliament and of the Council****. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements (for example plaque out of date). | | X | |
| | | (b) System or components damaged (for example illegible plaque) | | X | |
| | | (c) Software version or -integrity incorrect | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation (for example tampered or manipulated, or size of tyres not compatible with calibration parameters, or incorrect set speed, if checked). | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.56 Intelligent speed assistance<br>Description: system to aid the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1958*****. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.57 Reversing detection<br>Description: system to make the driver aware of people and objects at the rear of the vehicle with the primary aim of avoiding collisions when reversing, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 158. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.58 Driver drowsiness and attention warning<br>Description: system that assesses the driver's alertness through vehicle systems analysis and warns the driver if needed, for example in accordance with Regulation (EU) 2019/2144 and Commission | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| Delegated Regulation (EU) 2021/1341******. | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.59 Advanced driver distraction warning<br>Description: system that helps the driver to continue to pay attention to the traffic situation and that warns the driver when he or she is distracted, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2023/2590*******. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.60 Event data recorder<br>Description: system with the only purpose of recording and storing critical crash-related parameters and information shortly before, during and immediately after a collision, for example in accordance with Regulation (EU) 2019/2144, Commission Delegated Regulation (EU) 2022/545********, and UNECE-R 160. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation | X | | |
| | | (g) System or components not operating, or implausible operation (for example data not accessible) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation | X | | |
| 10.61 Automated driving system<br>Description: systems that are capable of performing the entire dynamic driving task of the fully automated vehicle on a sustained basis, for example in accordance with Regulation (EU) 2019/2144 and Commission Implementing Regulation (EU) 2022/1426*********. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation (for example HMI) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| 10.62 Driver availability monitoring systems (automated driving)<br>Description: System that assesses whether the driver is capable of taking over the driving function of a self-driving vehicle, if necessary, in certain situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 157. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br><br>X |
| | | (g) System or components not operating, or implausible operation (for example HMI) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |

PUBLIC

* Commission Implementing Regulation (EU) 2021/646 of 19 April 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 motor vehicles with regard to their emergency lane-keeping systems (ELKS) (OJ L 133, 20.4.2021, p. 31, ELI: http://data.europa.eu/eli/reg_impl/2021/646/oj).

** Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC (OJ L 123, 19.5.2015, p. 77, ELI: http://data.europa.eu/eli/reg/2015/758/oj).

*** Commission Delegated Regulation (EU) 2017/79 of 12 September 2016 establishing detailed technical requirements and test procedures for the EC type-approval of motor vehicles with respect to their 112-based eCall in-vehicles systems, of 112-based eCall in-vehicle separate technical units and components and supplementing and amending Regulation (EU) 2015/758 of the European Parliament and of the Council with regard to the exemptions and applicable standards (OJ L 12, 17.1.2017, p. 44, ELI: http://data.europa.eu/eli/reg_del/2017/79/oj).

**** Regulation (EU) No 165/2014 of the European Parliament and of the Council of 4 February 2014 on tachographs in road transport, repealing Council Regulation (EEC) No 3821/85 on recording equipment in road transport and amending Regulation (EC) No 561/2006 of the European Parliament and of the Council on the harmonisation of certain social legislation relating to road transport (OJ L 60, 28.2.2014, p. 1, ELI: http://data.europa.eu/eli/reg/2014/165/oj).

***** Commission Delegated Regulation (EU) 2021/1958 of 23 June 2021 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their intelligent speed assistance systems and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation (OJ L 409, 17.11.2021, p. 1, ELI: http://data.europa.eu/eli/reg_del/2021/1958/oj).

****** Commission Delegated Regulation (EU) 2021/1341 of 23 April 2021 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their driver drowsiness and attention warning systems and amending Annex II to that Regulation (OJ L 292, 16.8.2021, p. 4, ELI: http://data.europa.eu/eli/reg_del/2021/1341/oj).

******* Commission Delegated Regulation (EU) 2023/2590 of 13 July 2023 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-

approval of certain motor vehicles with regard to their advanced driver distraction warning systems and amending that Regulation (OJ L, 2023/2590, 22.11.2023, ELI: http://data.europa.eu/eli/reg_del/2023/2590/oj).

******** Commission Delegated Regulation (EU) 2022/545 of 26 January 2022 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their event data recorder and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation (OJ L 107, 6.4.2022, p. 18, ELI: http://data.europa.eu/eli/reg_del/2022/545/oj).

********* Commission Implementing Regulation (EU) 2022/1426 of 5 August 2022 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 the automated driving system (ADS) of fully automated vehicles (OJ L 221, 26.8.2022, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2022/1426/oj).

’;

(2) Annex III is amended as follows:

(a) in section I 'Facilities and equipment', the first paragraph is amended as follows:

(i) points (9) and (10) are replaced by the following:

'(9) A Class II sound level meter, if sound level is measured;

(10) A 4-gas analyser in accordance with Directive 2014/32/EU of the European Parliament and of the Council*;

* Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (OJ L 96, 29.3.2014, p. 149, ELI: http://data.europa.eu/eli/dir/2014/32/oj).';

(ii) the following points (16) and (17) are added:

'(16) device to measure particle number emissions with sufficient accuracy;

(17) [From one year after the entry into force of the delegated act referred to in Article 17], a device to measure nitrogen oxide ($NO_X$) emissions.';

(b) in section II, Table I is replaced by the following:

'*Table 1* (*)

Minimum equipment required for the purpose of performing a roadworthiness test

| Vehicles | | Category | | Equipment required for each item listed in section I | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Maximum mass | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 1. Motorcycles | | | [1] | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L1e | P | x | | | | | | | | x | x | | x | x | x | | | |
| | | L3e, L4e | P | x | | | | | | | | x | x | | x | x | x | | | |
| | | L3e, L4e | D | x | | | | | | | | x | | x | x | x | x | | | |
| | | L2e | P | x | x | | | | | | | x | x | | x | x | x | | | |
| | | L2e | D | x | x | | | | | | | x | | x | x | x | x | | | |
| | | L5e | P | x | x | | | | | | | x | x | | x | x | x | | | |
| | | L5e | D | x | x | | | | | | | x | | x | x | x | x | | | |
| | | L6e | P | x | x | | | | | | | x | x | | x | x | x | | | |
| | | L6e | D | x | x | | | | | | | x | | x | x | x | x | | | |
| | | L7e | P | x | x | | | | | | | x | x | | x | x | x | | | |
| | | L7e | D | x | x | | | | | | | x | | x | x | x | x | | | |
| 2. Vehicles for the carriage of persons | | | | | | | | | | | | | | | | | | | | |

PUBLIC

| Vehicles | | Category | | Equipment required for each item listed in section I | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Maximum mass | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | Up to 3 500 kg | $M_1$, $M_2$ | P | x | x | | x | | | | | x | x | | x | x | x | x | x | x |
| | Up to 3 500 kg | $M_1$, $M_2$ | D | x | x | | x | | | | | x | | x | x | x | x | | x | x |
| | > 3 500 kg | $M_2$, $M_3$ | P | x | x | x | | x | x | x | x | x | x | | x | x | x | x | x | x |
| | > 3 500 kg | $M_2$, $M_3$ | D | x | x | x | | x | x | x | x | x | | x | x | x | x | | x | x |
| 3. Vehicles for the carriage of goods | | | | | | | | | | | | | | | | | | | | |
| | Up to 3 500 kg | $N_1$ | P | x | x | | x | | | | | x | x | | x | x | x | x | x | x |
| | Up to 3 500 kg | $N_1$ | D | x | x | | x | | | | | x | | x | x | x | x | | x | x |
| | > 3 500 kg | $N_2$, $N_3$ | P | x | x | x | | x | x | x | x | x | x | | x | x | x | x | x | x |
| | > 3 500 kg | $N_2$, $N_3$ | D | x | x | x | | x | x | x | x | x | | x | x | x | x | | x | x |
| 4. ►**M1** Special vehicles derived from a category N vehicle, T1b, T2b, T3b, T4.1b, T4.2b and T4.3b ◄ | | | | | | | | | | | | | | | | | | | | |
| | Up to 3 500 kg | $N_1$ | P | x | x | | x | | | | | x | x | | x | x | x | x | x | x |
| | Up to 3 500 kg | $N_1$ | D | x | x | | x | | | | | x | | x | x | x | x | | x | x |

PUBLIC

| Vehicles | | Category | | Equipment required for each item listed in section I | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Maximum mass | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| | > 3 500 kg | $N_2$, $N_3$, ▸ **M1** T1b, T2b, T3b, T4.1b, T4.2b and T4.3b ◀ | P | x | x | x | | x | x | x | x | x | x | | x | x | x | x | x | x |
| | > 3 500 kg | $N_2$, $N_3$, ▸ **M1** T1b, T2b, T3b, T4.1b, T4.2b and T4.3b ◀ | D | x | x | x | | x | x | x | x | x | | x | x | x | x | | x | x |
| 5. Trailers | Up to 750 kg | $O_1$ | | x | | | | | | | | | | | | x | | | | |
| | > 750 to 3 500 kg | $O_2$ | | x | x | | x | | | | | | | | | x | | | | |
| | > 3 500 kg | $O_3$, $O_4$ | | x | x | x | | | x | x | x | | | | | x | | | | |

* The vehicle categories which are outside the scope of this Directive are included for guidance.

[1] P…petrol (positive ignition); D…diesel (compression ignition)

’;

PUBLIC

**(3)** **Annex IV is amended as follows:**

**(a)** ~~In Annex IV,~~ in point 2, point (a), points (i) and (ii) are replaced by the following:

‘(i) vehicle technology:

— braking systems;

— steering systems;

— fields of vision;

— light installation, lighting equipment and electronic components;

— axles, wheels and tyres;

— chassis and bodywork;

— nuisance and emissions;

— alternative drives (high-voltage, hybrid, hydrogen systems);

— additional requirements for special vehicles;

(ii) testing methods (including the necessary training for inspecting vehicles equipped with high-voltage systems);’

**(b) point 3 is replaced by the following:**

‘***3. Certificate of competence***

The certificate or equivalent documentation issued to an inspector authorised to carry out roadworthiness tests shall include at least the following information:

— identification of the inspector (first name, surname);

— vehicle categories for which the inspector is authorised to carry out roadworthiness tests **and, where relevant, areas of specialised competence of the inspector**;

— name of the issuing authority;

— date of issue.’.

PUBLIC

**ANNEX [II]**

PUBLIC

Annexes II, III, IV and V to Directive 2014/47/EU are amended as follows:

(1) Annex II is amended as follows:

(a) in point 1, the following point (10) is added:

‘(10) Electronic safety systems.’;

(b) point 3 is amended as follows:

(i) the heading is replaced by the following:

‘3. CONTENTS AND METHODS OF TESTING, REASONS FOR FAILURE, AND ASSESSMENT OF DEFICIENCIES OF VEHICLES’;

(ii) in the table, items 1.1.3 to 1.1.6 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.1.3. Vacuum pump or compressor and reservoirs | Visual inspection of the components at normal working pressure. Check time required for vacuum or air pressure to reach safe working value and function of warning device, multi-circuit protection valve and pressure relief valve.<br><br>Brake application means depression of the brake pedal/lever which allows the full flow of air/fluid application pressure to the brake assemblies. | (a) Insufficient pressure/vacuum to give assistance for at least four brake applications after the warning device has operated (or gauge shows an unsafe reading);<br><br>at least two brake applications after the warning device has operated (or gauge shows an unsafe reading). | | X<br><br>X |
| | | (b) Time taken to build up air pressure/vacuum to safe working value is too long according to the require-ments[1] | | X | |
| | | (c) Multi-circuit protection valve or pressure relief valve not working. | | X | |
| | | (d) Air leak causing a noticeable drop in pressure or audible air leaks.<br><br>Air leak causing a critical drop in pressure. | | X<br><br>X |
| | | (e) External damage likely to affect the function of the braking system. | | X | |
| 1.1.4. Low pressure warning device | Functional check | Malfunctioning or defective warning device.<br><br>Low pressure not identifiable. | X | <br><br>X | |
| 1.1.5. Hand-operated brake control valve | Visual inspection of the components while the braking system is operated. | (a) Control cracked, damaged or excessively worn. | | X | |
| | | (b) Control insecure on valve or valve insecure. | | X | |
| | | (c) Loose connections, defective fixing, or leaks in system. | | X | |
| | | (d) Unsatisfactory operation. | | X | |

| | | | | | |
|---|---|---|---|---|---|
| 1.1.6. Parking brake (activator, lever control, parking brake ratchet) | Visual inspection of the components while the braking system is operated. | (a) Ratchet not holding correctly. | | X | |
| | | (b) Wear at lever pivot or in ratchet mechanism. | X | | |
| | | Excessive wear. | | X | |
| | | (c) Excessive movement of lever indicating incorrect adjustment. | | X | |
| | | (d) Activator missing, damaged or inoperative. | | X | |
| | | (e) Incorrect functioning, warning indicator shows malfunction | | X | |

PUBLIC

’;

(iii) in the table, item 1.1.13 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.1.13. Brake linings and pads | Visual inspection. | (a) Lining or pad excessively worn (minimum mark reached). | | X | |
| | | Lining or pad excessively worn (minimum mark not visible). | | | X |

| | | | | | |
|---|---|---|---|---|---|
| | | (b) Lining or pad contaminated (oil, grease etc.).<br>Braking performance affected. | | X | <br>X |
| | | (c) Lining or pad missing or wrongly mounted, or of obviously incorrect type. | | | X |
| | | (d) Wear indicator electrical harness disconnected or damaged | X | | |

';

(iv) in the table, item 1.1.18 is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 1.1.18. Slack adjusters and indicators | Visual inspection of the components while the braking system is operated, if possible. | (a) Adjuster damaged, seized or having abnormal movement, excessive wear, or incorrect adjustment. | | X | |
| | | (b) Adjuster defective. | | X | |
| | | (c) Incorrectly installed or replaced. | | X | |

;

(v) in the table, item 1.1.19 is deleted;

(vi) in the table, item 1.1.23 is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 1.1.23. Overrun brake | Visual inspection and by operation | (a) Not working properly, for example, stroke of the drawbar exceeds 2/3 of the total overrun travel | | X | |
| | | (b) Breakaway cable defect or missing | | X | |

PUBLIC

’;

(vii) in the table, items 1.2.1 and 1.2.2 are replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.2.1. Performance (E) | During a test on a brake tester or, if impossible, during a road test, apply the brakes progressively up to maximum effort.<br><br>It must be ensured, where possible, that the mechanical service brakes are inspected without interference/blending of regenerative braking or other continuous braking. | (a) Inadequate braking effort on one or more wheels.<br><br>~~Or, in the case of testing on the road, the vehicle deviates excessively from a straight line and/or excessive vibration is produced at the service brake pedal/lever.~~<br><br>No braking effort on one or more wheels. | | X<br><br>~~X~~ | <br><br><br>X |
| | | (b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from the other wheel on the same axle. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line.<br><br>Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles. | | X | <br><br>X |
| | | (c) No gradual variation in brake effort (grabbing). | | X | |
| | | (d) Abnormal lag in brake operation of any wheel. | | X | |
| | | (e) Excessive fluctuation of brake force during each complete wheel revolution. **Or, in the case of testing on the road, excessive vibration is produced at the service brake pedal/lever.** | | X | |
| 1.2.2. Efficiency(E) | Test with a brake tester at the presented weight or, if one cannot be used for technical reasons, by a road test usinga deceleration recording instrument ([1]). | Does not give at least the minimum figure as follows ([2]):<br><br>Categories $M_1$, $M_2$ and $M_3$: 50 % ([3])<br><br>Category $N_1$: 45 %<br><br>Categories $N_2$ and $N_3$: 43 % ([4]) | | X | |

| | | | | | |
|---|---|---|---|---|---|
| | | Categories $O_3$ and $O_4$: 40 % ([5])<br><br>Category T: 40%<br><br>~~Less than 50 % of the above values reached~~ | | | ~~X~~ |
| | | **Less than 50 % of the above values reached** | | | **X** |

’;

(viii) in the table, item 1.3.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.3.1. Performance (E) | If the secondary braking system is separate from the service braking system, use the method specified in 1.2.1.<br><br>It must be ensured that, where possible, the mechanical brakes are inspected without interference/blending of regenerative braking or other continuous braking. | (a) Inadequate braking effort on one or more wheels. | | X | |
| | | No braking effort on one or more wheels. | | | X |
| | | (b) Braking effort from any wheel is less than 70 % of the maximum effort recorded from another wheel on the same axle specified. Or, in the case of testing on the road, the vehicle deviates excessively from a straight line. | | X | |
| | | Braking effort from any wheel is less than 50 % of the maximum effort recorded from the other wheel on the same axle in the case of steered axles. | | | X |
| | | (c) No gradual variation in brake effort (grabbing). | | X | |

’;

(ix) in the table, item 1.4.1 **and 1.4.2 are** ~~is~~ replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.4.1. Performance (E) | Apply the brake during a test on a brake tester or by road test. | Brake inoperative on one side or, in the case of testing on the road, the vehicle deviates excessively from a straight line.<br>Less than 50 % of the braking effort values as referred to in point 1.4.2 reached in relation to the vehicle mass during testing. | | X | X |
| 1.4.2. Efficiency | Test with a brake tester. If not possible, then by a road test using either an indicating or deceleration recording instrument or with the vehicle on a slope of known gradient **or using the wheel play detector.** | Does not give, for all vehicles, a braking ratio of at least 16 % in relation to the maximum authorized mass or, for motor vehicles, of at least 12 % in relation to the maximum authorised combination mass of the vehicle, whichever is the greater.<br>Less than 50 % of the above braking effort values reached. | | X | X |

’;

(x) in the table, item 1.5 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 1.5. Endurance braking system performance | Visual inspection and, where possible, test whether the system functions, i.e. by road test. | (a) Malfunction indicator indicates a fault. | | X | |
| | | (b) System not functioning. | | X | |

’;

(xi) in the table, item 1.6 is deleted;

(xii) in the table, item 2.6 is deleted;

(xiii) in the table, item 4.1.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.1.1. Condition and operation | Visual inspection and by operation **or by using the electronic *vehicle* interface**. | (a) Defective or missing light source.<br>Multiple light sources (in the case of LED, up to 1/3 not functioning). | X | | |
| | | Seriously affected visibility **(single light source, or, in the case of LED, less than 2/3 functioning).**. | | X | |
| | | (b) Slightly defective projection system (reflector and lens). | X | | |
| | | Heavily defective or missing projection system (reflector and lens). | | X | |
| | | (c) Lamp not securely attached. | | X | |
| | | (d) System indicates failure for example via the electronic vehicle interface. | | X | |

’;

(xiv) in the table, item 4.1.5 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.1.5. Manual levelling devices (where mandatory) | Visual inspection and by operation, if possible~~, or using the electronic vehicle interface~~. | (a) Device not operating. | | X | |
| | | (b) Device cannot be operated from driver's seat. | | X | |

’;

(xv) in the table, item 4.2.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| ‘4.2.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br>Multiple light sources (in the case of LED, up to 1/3 not functioning); one of several lateral light sources defective.<br>Seriously affected visibility (in the case of LED, less than 2/3 functioning). | X | **X**<br><br>X | |
| | | (b) Defective lens. | | X | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | <br>X | |

’;

(xvi) in the table, item 4.3.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.3.1. Condition and operation | Visual inspection and by operation | (a) Defective or missing light source.<br>Multiple light sources; in the case of LED up to 1/3 not functioning).<br>Single light sources; in the case of LED less than 2/3 functioning.<br>All light sources not functioning. | X | X | X |
| | | (b) Slightly defective lens (no influence on emitted light).<br>Heavily defective lens (emitted light affected). | X | X | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off, | X | X | |

’;

(xvii) in the table, item 4.4.1 is replaced by the following:

‘

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| 4.4.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br>Multiple light sources (in the case of LED up to 1/3 not functioning). | X | | |
| | | Single light sources; in the case of LED less than 2/3 functioning. | | X | |
| | | No light source functioning. | | | X |
| | | (b) Slightly defective lens (no influence on emitted light). | X | | |
| | | Heavily defective lens (emitted light affected). | | X | |
| | | (c) Lamp not securely attached. | X | | |
| | | Very serious risk of falling off. | | X | |

’;

(xviii) in the table, item 4.5.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.5.1. Condition and operation | Visual inspection and by operation | (a) Defective or missing light source<br>Multiple light source; in thecase of LED up to 1/3 not functioning. | X | | |
| | | Single light sources; in the case of LED less than 2/3 | | X | |

| | | | | | |
|---|---|---|---|---|---|
| | | functioning. | | | |
| | | (b) Slightly defective lens (no influence on emitted light).<br>Heavily defective lens (emitted light affected). | X | <br>X | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off or dazzling oncoming traffic. | X | <br>X | |

’;

(xix) in the table, item 4.6.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.6.1. Condition and operation | Visual inspection and by operation. | (a) Defective or missing light source<br>Multiple light sources (in the case of LED up to 1/3 not functioning).<br>Single light sources; in the case of LED less than 2/3 functioning. | <br>X | <br><br>X | |
| | | (b) Defective lens. | X | | |
| | | (c) Lamp not securely attached.<br>Very serious risk of falling off. | X | <br>X | |

’;

(xx) in the table, item 4.7.1 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.7.1. Condition and operation | Visual inspection and by operation | (a) Lamp throwing direct or white light to the rear. | X | | |
| | | (b) Defective or missing light source (multiple light source). | X | | |
| | | Defective or missing light source (single light source). | | X | |
| | | (c) Lamp not securely attached. | X | | |
| | | Very serious risk of falling off. | | X | |

’;

(xxi) in the table, in item 4.11, the title in the first column is replaced by the following:

‘Electrical wiring (except high-voltage wiring)’;

(xxii) in the table, in item 4.13, the title in the first column is replaced by the following:

‘Battery (or batteries, except high-voltage batteries)’;

(xxiii) in the table, the following item 4.14 is inserted:

‘

| | | | | | |
|---|---|---|---|---|---|
| 4.14 High-voltage systems | | | | | |
| 4.14.1 Electrical safety | Visual inspection complemented by using the vehicle interface | (a) Indicator or vehicle interface shows system malfunction | | X | |
| | | (b) Software version or -integrity incorrect | | X | |

| | | | | | |
|---|---|---|---|---|---|
| 4.14.2 Traction battery cover | Visual inspection. | (a) Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |
| | | (b) Defective attachment | | X | |
| | | Very serious risk of falling off | | | X |
| | | (c) Obstructed ventilation port(s) | X | | |
| 4.14.3 Traction battery | Visual inspection, complemented by using the vehicle interface (where made possible by the technical characteristics of the vehicle, and where the necessary data are available). | (a) Marks of leakage | | X | |
| | | Leaking (presence of droplets) | | | X |
| | | (b) Incorrect software or hardware, or readiness-code not active | | X | |
| 4.14.4 High voltage electrical wiring | | | | | |
| 4.14.4.1 High voltage wiring harness and connector | Visual inspection and by operation with the vehicle over a pit or on a hoist, including inside the engine compartment and the boot (where applicable) | (a) Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |
| | | Risk of short-circuit fault | | | X |
| | | (b) Wiring insecure or not adequately secured | X | | |
| | | Fixings loose, touching sharp edges, connectors likely to be disconnected | | X | |
| | | Wiring likely to touch hot parts, rotating parts or the ground, connectors disconnected | | | X |
| | | (c) Imminent risk of fire, formation of sparks | | | X |
| 4.14.4.2 Ground braid, including their attachment | Visual inspection and by operation. | Slightly deteriorated | X | | |
| | | Heavily deteriorated | | X | |
| 4.14.4.3 Ground continuity (X)[2] | Measurement using an ohmmeter | Test not feasible | X | | |
| | | Too high resistance (over 100 Ohms) | | X | |
| 4.14.4.4 Charging inlet cover | Visual inspection and by operation. | Deteriorated | X | | |
| | | Missing | | X | |
| 4.14.4.5 Charging inlet | Visual inspection and by operation. | (a) Deteriorated | X | | |
| | | Trace of beginning of melting or electric arcs | | X | |
| | | (b) Foreign material or moisture | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 4.14.4.6 Charging cable | Visual inspection and by operation. | (a) Deteriorated | X | | |
| | | (b) Charging cable not provided | X | | |
| 4.14.5. High voltage electrical and electronical equipment (X)[2] | | | | | |
| 4.14.5.1. High voltage electrical and electronical equipment | Visual inspection and by using the electronic vehicle interface. | (a) Slightly deteriorated<br>Heavily deteriorated | X | <br>X | |
| | | (b) Attachment defective | | X | |
| | | (c) Leaking | | X | |
| 4.14.5.2. Traction motor | Visual inspection<br><br>Check of operational readiness of the systems by an applicable interface (OBD or OBM)<br><br>Measurement of equipotential bonding, where made possible by the technical characteristics of the vehicle | (a) Shield is deformed, not in-place or damaged, or corroded | | X | |
| | | (b) Warning marking missing or illegible | | X | |
| | | (c) Connection of wiring harness insecure or corroded | | X | |
| | | (d) Electrical insulation damaged or deteriorated<br>likely to cause injury when contacted. | | X | <br>X |
| | | (e) Fault readiness of the traction motor | | X | |
| | | (f) Wrong version of type-approved hardware and software not in accordance with the requirements as defined in the ECE R100 | | X | |
| 4.14.5.3 Electronic converters, motor, and inverter | Visual inspection<br><br>Check of operational readiness of the systems by an applicable interface (OBD or OBM)<br><br>Measurement of equipotential bonding, where made possible by the technical characteristics of the vehicle | (a) Not in accordance with requirements[1] | | X | |
| | | (b) Inadequately secured | | X | |
| | | (c) Damaged or corroded components<br>Likely to cause injuries or to fall off | X | <br>X | |
| | | (d) Shields not in place or damaged | | X | |
| | | (e) Damaged or deteriorated electrical insulation | | X | |
| | | (f) Fault readiness of the converter and inverter systems | | X | |
| | | (g) Wrong version of type-approved hardware and | | X | |

PUBLIC

| | | | | | | |
|---|---|---|---|---|---|---|
| | | software | | | | |
| 4.14.6. Insulation resistance (X)[2] | | | | | | |
| 4.14.6.1. Insulation resistance of the vehicle charging inlet and resistance of the protective earthing | Read insulation resistance by the electronic vehicle interface, where made possible by the technical characteristics of the vehicle and where the necessary data is made available | (c) Insulation resistance is not in accordance with requirements or predefined values from the vehicle manufacturer | | X | | |
| | | (d) Resistance of the protective earthing is not in accordance with requirements | | X | | |
| 4.14.6.2. Insulation resistance between the high-voltage system and chassis | Visual inspection<br>Read insulation resistance by the electronic vehicle interface, where made possible by the technical characteristics of the vehicle and where the necessary data is made available | (c) Insulation monitoring system shows malfunction | | X | | |
| | | (d) Insulation resistance value not in accordance with requirements | | X | | |
| 4.14.7. Anti-starting system | | | | | | |
| 4.14.7.1. Anti-starting system | Visual inspection and by operation when possible.<br>Functional check by verifying that the vehicle cannot move by itself with the charging cable plugged, and the driver's weight lifted out of the seat | (a) Indicator malfunction | X | | | |
| | | (b) Inoperative, i.e., vehicle can move with connected charging cable or with no driver present | | X | | |

';

(xxiv) in the table, item 5.1.3 is replaced by the following:

'

| | | | | | |
|---|---|---|---|---|---|
| 5.1.3. Wheel bearings (+ E) | Visual inspection using. wheel play detectors if available. Rock the wheelor apply a lateral force to each wheel and note the amount of upwardmovement of the wheel relative to the stub axle. | (a) Excessive play in a wheel bearing.<br>Directional stability impaired; danger of demolishment. | | X | X |
| | | (b) Wheel bearing too tight, jammed.<br>Danger of overheating; danger of demolishment. | | X | X |
| | | (a) Audible signs of bearing wear or damage. | | X | |

(xxv) in the table, items 7.1.3, 7.1.4, 7.1.5, and 7.1.6 are deleted;

(xxvi) in the table, item 7.8 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 7.8. Speedometer | Visual inspection or by operation during road test or by using the electronic vehicle interface, or any combination of these. | (a) Not fitted in accordance with the requirements[1].<br>Missing (if required). | X | X | |
| | | (b) Operation impaired.<br>Not operational at all. | X | X | |
| | | (c) Not capable of being sufficiently illuminated.<br>Not capable of being illuminated at all. | X | X | |

’;

(xxvii) in the table, items 7.9 and 7.10 are deleted;

(xxviii) in the table, item 7.11 is replaced by the following:

‘

| | | | | | |
|---|---|---|---|---|---|
| 7.11. Odometer, if available | Visual inspection, and/or using electronic interface (OBD or OBM) | (a) Obviously manipulated (fraud) to reduce or misrepresent the vehicle's distance record. | | X | |
| | | (b) Obviously inoperative. | | X | |

’;

(xxix) in the table, items 7.12 and 7.13 are deleted;

PUBLIC

(xxx) in the table, items 8.1 and 8.2 are replaced by the following:

8.1. Noise

| | | | | | |
|---|---|---|---|---|---|
| 8.1.1. Noise suppression system (+E) | For L-category vehicles powered by internal combustion engines, visual inspection and measurement of noise emitted by stationary vehicle using a sound level meter.<br>For other vehicles, subjective evaluation (unless the inspector considers that the noise level may be borderline, in which case a measurement of noise emitted by stationary vehicle using a sound level meter may be conducted). | (a) Noise levels in excess of those permitted in the requirements[1]. | | X | |
| | | (b) Any part of the noise suppression system loose, damaged, incorrectly fitted, missing or obviously modified in a way that would adversely affect the noise levels.<br>Very serious risk of falling off. | | X | X |
| | **Alternatively, ~~M~~m**easurement using remote sensing equipment **and confirmed by standard test methods** | (c) Remote sensing measurement showing significant non-compliance. | | X | |

8.2. Exhaust emissions

| | | | | | |
|---|---|---|---|---|---|
| 8.2.1. Exhaust emissions control equipment | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface (OBD or OBM read-out) | (a) Emission control equipment fitted by the manufacturer absent, modified or obviously defective. | | X | |
| | | (b) Leaks which would affect emission measurements. | | X | |
| | | (c) Warning device malfunctioning, warning indicator / tell-tale inoperative. | | X | |
| | | (d) MIL activated, warning device shows system malfunction. | | X | |
| | | (e) System indicates failure via the electronic vehicle interface. | | X | |
| | | (f) Exhaust emission control unit modified affecting safety and/or the environment. | | X | |
| | | (g) Any other emission relevant control unit modified affecting safety and/or the environment. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Presence of electronic devices not authorised by the vehicle manufacturer nor approved during homologation changing signals to or from the engine or pollution control unit(s). | | X | |
| | | (i) Insufficient reagent, if applicable. | | X | |
| | | (j) OBD or OBM read-out indicating significant malfunction. | | X | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| 8.2.2 Exhaust emission measurement – positive ignition engines | Test procedures:<br><br>For vehicles that had a particle number (PN) limit at type-approval; Euro VI, Euro 6c and newer:<br><br>Particle number (PN) measurement in accordance with 8.2.2.1.<br><br>For all vehicles:<br><br>Gaseous emissions test in accordance with 8.2.2.2.<br><br>For vehicles as of emission classes Euro VI, Euro 6d-TEMP and newer:<br><br>$NO_X$ measurement in accordance with 8.2.2.3. | | | | |
| 8.2.2.1 Particle number measurement (E) | Vehicle preconditioning:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 21].<br><br>Measuring instrument preparation:<br><br>— The device to measure PN is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 21], to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction; | Measurement result exceeds [to be specified in accordance with the delegated acts referred to in Article 21] ($1/cm^3$). | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— The software of the particle counter automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured PN concentration measured at different exhaust system outlets shall be considered as the vehicle's PN concentration;<br><br>— The vehicle operates [as specified in accordance with the delegated acts referred to in Article 21]. In case the engine of a vehicle is not switched on at static conditions then the start/stop system shall be deactivated by the test operator. For hybrid and plug-in hybrid vehicles, the thermal engine shall be switched on;<br><br>— After the probe has been inserted into the tailpipe, the following steps shall be followed:<br>1. A stabilization period of at least 15 seconds with the engine running at idle speed.<br>2. After the stabilisation period, the PN concentration emissions are measured. The duration of the test shall be at least [XX] seconds (total measurement | | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | duration) [to be specified in accordance with the delegated acts referred to in Article 21].<br><br>After the completion of the test procedure, the instrument reports (and stores) the PN concentration of the vehicle and a “PASS” or “FAIL” message:<br><br>— If the test result is less than or equal to the limit, the instrument reports a “PASS” message.<br><br>— If the test result is greater than the limit, the instrument reports a “FAIL” message. | | | | |
| 8.2.2.2. Gaseous emissions (E) | Measurement using an exhaust gas analyser in accordance with the requirements[1].<br><br>Measurements not applicable for two-stroke engines.<br><br>Alternatively, measurement using remote sensing equipment and confirmed by standard test methods. | (a) Either gaseous emissions exceed the specific levels given by the manufacturer; | | X | |
| | | (b) Or, if this information is not available, the CO emissions exceed,<br>(i) for vehicles not controlled by an advanced emission control system,<br>— 4,5 %, or<br>— 3,5 %<br>according to the date of first registration or use specified in requirements[1].<br>(ii) for vehicles controlled by an advanced emission control system,<br>— at engine idle: 0,5 %<br>— at high idle: 0,3 % or<br>— at engine idle: 0,3 % ([7])<br>— at high idle: 0,2 % or<br>— at engine idle: 0,2 % ([8])<br>— at high idle: 0,1 %<br>according to the date of first registration or use specified in requirements[1]. | | X | |
| | | (c) Lambda coefficient outside the range 1 ± 0,03 or not in accordance with the manufacturer's specification; | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 8.2.2.3. $NO_X$ measurement (E) | <u>Vehicle preconditioning:</u><br><br>[to be specified in accordance with the delegated acts referred to in Article 21];<br>- […]<br><br>Measuring instrument preparation:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 21) or combined with PN measurement in accordance with 8.2.2.1];<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 21];<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— [to be specified in accordance with the delegated acts referred to in Article 21 or combined with PN measurement in accordance with 8.2.2.1];<br><br>Alternatively, measurement using remote sensing equipment and confirmed by standard test methods in accordance with item 8.2.2. in this table or with item 8.2.2 in point 3 of Annex I to Directive 2014/45/EU. | (a) Measurement result exceeds [$NO_X$ limit to be specified in accordance with the delegated acts referred to in Article 21]. | | X | |
| | | (b) OBD or OBM read-out indicating significant malfunction. | | X | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| 8.2.3 Exhaust emission measurement – compression ignition engines | Test procedures:<br><br>For vehicles as of emission classes Euro 5b and Euro VI and newer:<br><br>PN measurement in accordance with 8.2.3.1<br><br>For vehicles up to emission classes Euro 5a and Euro V:<br><br>Opacity measurement in accordance with 8.2.3.2.<br><br>For vehicles equipped with particle filters, Member States may apply PN measurement in accordance with 8.2.3.1 instead of opacity measurement.<br><br>For vehicles as of emission classes Euro 6d-TEMP and Euro VI and newer:<br><br>$NO_X$ measurement in accordance with 8.2.3.3. | | | | |
| 8.2.3.1 Particle number measurement (E) | Vehicle preconditioning:<br><br>At the beginning of the test the vehicle's engine should be:<br><br>— Hot, i.e., engine coolant temperature above 60 °C but preferably above 70 °C<br><br>— Conditioned, by operating for a period of time at low idling and/or performing stationary accelerations up to maximum 2 000 rpm engine speed or by driving. The recommended total conditioning time is at least 300 seconds.<br><br>During the test, the vehicle shall not be performing an active particulate filter regeneration.<br><br>A fast pass test is possible with engine coolant temperature below 60 °C. However, if the vehicle fails to pass the test, the | Measurement result exceeds 250 000 ($1/cm^3$)<br><br>For vehicles up to emission class Euro 5a and Euro V, equipped with particle filters, Member States may apply a limit up to 1 000 000 ($1/cm^3$) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | test shall be repeated, and the vehicle should fulfil the requirements set for the engine coolant temperature and the conditioning.<br><br>Measuring instrument preparation:<br><br>— The instrument is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument as defined in Section 5 of Commission Recommendation (EU) 2023/688, as adopted on 20 March 2023, to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction;<br><br>Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— The software of the particle counter automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured PN concentration measured at different exhaust system outlets shall be considered as the vehicle's PN concentration;<br><br>— The vehicle operates at low idling. In case the engine of a vehicle is not switched on at static conditions then the start/stop system shall be deactivated by the test operator. For hybrid and plug-in hybrid vehicles, the thermal engine shall be switched on;<br><br>— After the probe has been inserted into the tailpipe, the following steps shall be followed: | | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | 1. A stabilization period of at least 15 seconds with the engine running at idle speed. Optionally, before the stabilization period 2-3 accelerations up to maximum 2 000 rpm engine speed are performed,<br><br>2. After the stabilisation period, the PN concentration emissions are measured. The duration of the test shall be at least 15 seconds (total measurement duration). The test result shall be the average PN concentration of the measurement duration. If the measured PN concentration is more than two times the limit, the measurement may stop immediately before waiting for 15 seconds to elapse. The test result shall be reported.<br><br>After the completion of the test procedure, the instrument reports (and stores) the average PN concentration of the vehicle and a "PASS" or "FAIL" message:<br><br>— If the test result is less than or equal to the limit, the instrument reports a "PASS" message.<br><br>— If the test result is greater than the limit, the instrument reports a "FAIL" message. | | | | |
| 8.2.3.2. Opacity<br>Vehicles registered or put into service before 1 January 1980 are exempted from this requirement | Exhaust gas opacity to be measured during free acceleration (no load from idle up to cut-off speed) with gear lever in neutral and clutch engaged and, if specified in accordance with the type-approval regulations, reading of OBD in accordance with the manufacturer's recommendations and other requirements.<br><br>Vehicle preconditioning:<br>1. Vehicles may be tested without preconditioning, although for safety reasons checks should be made that the engine is warm and in a satisfactory mechanical condition. | (a) For vehicles registered or put into service for the first time after the date specified in requirements[1].<br>opacity exceeds the level recorded on the manufacturer's plate on the vehicle; | | X | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| | 2. Precondition requirements:<br>(i) Engine shall be fully warm, for instance the engine oil temperature measured by a probe in the oil level dipstick tube to be at least 80 °C, or normal operating temperature if lower, or the engine block temperature measured by the level of infrared radiation to be at least an equivalent temperature. If, owing to the vehicle configuration, this measurement is impractical, the establishment of the engine's normal operating temperature may be made by other means, for example by the operation of the engine cooling fan.<br>(ii) Exhaust system shall be purged by at least three free acceleration cycles or by an equivalent method. | (b) Where this information is not available or requirements[1] do not allow the use of reference values,<br>— for naturally aspirated engines: 2,5 $m^{-1}$,<br>— for turbo-charged engines: 3,0 $m^{-1}$, or<br>— for vehicles identified in requirements[1] or first registered or put into service for the first time after the date specified in requirements[1]: 1,5 $m^{-1}$ ([9]) or 0,7 $m^{-1}$ ([8]) | | | |
| | Test procedure:<br><br>Engine and any turbocharger fitted, to be at idle before the start of each free acceleration cycle. For heavy-duty diesels, this means waiting for at least 10 seconds after the release of the throttle.<br><br>To initiate each free acceleration cycle, the throttle pedal must be fully depressed quickly and continuously (in less than one second) but not violently, so as to obtain maximum delivery from the injection pump. | | | | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| | During each free acceleration cycle, the engine shall reach cut-off speed or, the speed specified by the manufacturer or, if this data is not available, then two thirds of the cut-off speed, before the throttle is released. This could be checked, for instance, by monitoring engine speed or by allowing a sufficient time to elapse between initial throttle depression and release, which in the case of vehicles of categories $M_2$, $M_3$, $N_2$ and $N_3$, should be at least two seconds.<br><br>Vehicles shall only be failed if the arithmetic means of at least the last three free acceleration cycles are in excess of the limit value. This may be calculated by ignoring any measurement that departs significantly from the measured mean, or the result of any other statistical calculation that takes account of the scattering of the measurements. Member States may limit the number of test cycles.<br><br>To avoid unnecessary testing, Member States may fail vehicles which have measured values significantly in excess of the limit values after fewer than three free acceleration cycles or after the purging cycles. Equally to avoid unnecessary testing, Member States may pass vehicles which have measured values significantly below the limits after fewer than three free acceleration cycles or after the purging cycles.<br><br>Alternatively, measurement usingremote sensing equipment and confirmed by standard test methods in accordance with item 8.2.3 of this table or with item 8.2.3 in point 3 of Annex I to Directive 2014/45/EU. | | | | |

PUBLIC

| Item | Method | Reasons for failure | Assessment of deficiencies | | |
|---|---|---|---|---|---|
| | | | Minor | Major | Dangerous |
| 8.2.3.3. $NO_X$ measurement (E) | Vehicle preconditioning:<br><br>Prior to testing, the vehicle's exhaust aftertreatment system shall be warmed up, to the conditions that allow effective abatement of $NO_X$ emissions by the selective catalytic reduction (SCR) unit of the vehicle by at least a 5-minute drive or an equivalent method. Once the condition is reached, the vehicle shall not be turned off and the measurement shall be performed within 3 minutes for $M_1$ and $N_1$ vehicles and within 3.5 minutes for $M_2$, $M_3$, $N_2$ and $N_3$ vehicles. Where possible, the vehicle's readiness to be tested shall be ascertained by checking the indicator lamp on the dashboard or via the vehicle interface (OBD or OBM read-out).<br><br>During the test, the vehicle shall not be performing an active particulate filter regeneration.<br><br>Measuring instrument preparation:<br><br>— The device to measure $NO_X$ emissions is powered on for at least the warm-up time indicated by the manufacturer;<br><br>— Self-checks of the instrument [to be specified in accordance with the delegated acts referred to in Article 21] to monitor the proper operation of the instrument during operation and trigger a warning or message in case of malfunction; | (a) Measurement result exceeds 40 ppm | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | Before each test, the good condition of the sampling system shall be verified, including checking the sampling hose and probe for damage.<br><br>Test procedure:<br><br>— The software of the $NO_X$ analyser automatically guides the instrument operator through the test procedure;<br><br>— The probe is inserted at least 0,20 m into the outlet of the exhaust system. In justified exemptions where sampling at this depth is not possible, the probe is inserted at least 0,05 m. The sampling probe shall not touch the walls of the tailpipe;<br><br>— If the exhaust system has more than one outlet, the test shall be done to all of them. In this case, the highest measured $NO_X$ concentration measured at different exhaust system outlets shall be considered as the vehicle's $NO_X$ concentration;<br><br>— The vehicle operates at low idling;<br><br>— After the probe has been inserted into the tailpipe, the following steps shall be followed:<br>1. A stabilization period of at least 15 seconds with the engine running at idle speed.<br>2. After the stabilisation period, the $NO_X$ concentration emissions are measured. The duration of the test shall be at least 15 seconds (total measurement duration). The test result shall be the average $NO_X$ concentration of the measurement duration.<br><br>After the completion of the test procedure, the instrument reports (and stores) the average $NO_X$ concentration of the vehicle and a "PASS" or "FAIL" message:<br><br>— If the test result is less than or equal to the limit, the instrument reports a "PASS" message.<br><br>— If the test result is greater than the limit, the instrument reports a "FAIL" message.<br><br>Alternatively, measurement usingremote sensing equipment and confirmed by standard test methods in accordance with | | | | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | item 8.2.3 in this table or item 8.2.3 in point 3 of Annex I to Directive 2014/45/EU. | | | | |

PUBLIC

(xxxi) in the table, item 8.4.1, is replaced by the following:

| | | | | | |
|---|---|---|---|---|---|
| 8.4.1. Fluid leaks | Visual inspection | Any excessive fluid leak, other than water, likely to harm the environment or to pose a safety risk to other road users.<br><br>Steady formation of drops that constitutes a very serious risk. | | X<br><br> | <br><br>X |

(xxxii) in the table, the following item 10 is added:

‘

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10. ELECTRONIC SAFETY SYSTEMS | | | | | |
| 10.1. Cornering light<br>Description: during cornering, an extra headlamp is activated. Operates up to 40 km/h, for example in accordance with UNECE-R 48 or UNECE-R 119. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | X | X |
| 10.2 Adaptive cruise control<br>Description: The system maintains the vehicle's speed, depending on the preferred speed and distance to the vehicle in front. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged, or sensors obviously misaligned | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.3 Adaptive deflectors<br>Description: Depending on the vehicle's speed, the air deflectors are adjusted in order to improve driving stability. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.4 Airbag<br>Description: In case of an accident, inflatable airbags reduce the risk of injury by their absorbing effect, for example in accordance with UNECE-R 12; UNECE-R 14; or UNECE-R 16. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or components (for example seat occupancy detection) obviously missing. | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| | | (g) System or components obviously not operating (for example not suitable with the vehicle) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| 10.5 Active Headrest<br>Description: the system reduces the danger of a whiplash injury in the event of a rear end collision by changing the position of the headrest towards the head. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| | | (g) System or components not operating, where applicable, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| 10.6 Active hood<br>Description: by automatically lifting the bonnet, the system ensures a larger collapsible zone in the event of an accident involving a pedestrian. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating (for example outdated), where applicable, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.7 Automatic hold function<br>Description: the system independently holds the vehicle after stopping using the service brake and/or parking brake and automatically releases them when starting. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.8 Automatic headlamp levelling<br>Description: depending on the load and (optional) pitch angle, the system regulates the headlamp's vertical aim, for example in accordance with UNECE-R 121. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.9 Automatic emergency braking system<br>Description: the system independently starts braking in order to avoid a collision with an obstacle or another road user, or to reduce the consequences of an inevitable impact. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged, or sensors obviously misaligned | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operative (for example audio components) | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.10 Anti-lock braking system<br>Description: the system automatically prevents wheel-locking during braking by selective reduction of the wheel brake force, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components (for example wheel speed sensor) damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.11 Automatic light<br>Description: depending on the ambient brightness, the system automatically switches on and off the driving light. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.12 Electro-mechanic power steering<br>Description: the supporting power for steering is generated by an electric motor. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating (for example Power assistance not working), or implausible operation (for example inconsistency between the angle of the steering wheel and the angle of the wheels.)<br><br>Steering affected | | X | X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.13 Electronic four-wheel steering<br>Description: two axles are steered, with a steering angle greater than 3° on all steered wheels, for example in accordance with UNECE-R 79 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.14 Electronic damping<br>Description: depending on the driving situation, the rebound and compression stage of the shock absorbers is adjusted by the system. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.15 Electronic brake system<br>Description: a brake pedal sensor and/or pressure sensor records the braking request and calculates the optimal brake force for each wheel, so that there is optimal activation of all wheel brakes. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface, or by road test. | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.16 Electronic stability program<br>Description: the system stabilizes the vehicle or the complete vehicle train in critical, dynamic driving situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 140. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component (for example wheel speed sensors) missing | | X | |
| | | (b) System or components (for example wheel speed sensors) damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.17 High beam assist<br>Description: the system automatically activates and deactivates the high beam according to the driving situation and lighting conditions. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.18 Speed limiter<br>Description: While driving, the system prevents exceeding a defined maximum speed. Relevant, if mandatory, for example in accordance with UNECE-R 89 and Regulation (EU) 2019/2144. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements. | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation (for example tampered or manipulated, or size of tyres not compatible with calibration parameters, or incorrect set speed, if checked). | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.19 Belt tensioner and belt force limiter<br>Description: In the event of an accident, the seat belt is tensioned to place the passengers in a setpoint position and/or limits the belt force, electrically controlled and, thus, limits the forces acting on the persons for example in accordance with UNECE-R 16 or UNECE-R 94. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing, or not suitable with the vehicle | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| | | (g) System or components not operating, where applicable, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board | X | X | X |
| 10.20 Taillight switching<br>Description: Depending on operating status and/or failure of the illuminants, lighting functions are taken over by other luminaires. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.21 Bending light<br>Description: during cornering and depending on the steering angle and speed, the light beam is swivelled and/or an additional headlight is activated, for example in accordance with UNECE-R 48; UNECE-R 98; UNECE-R 112; or UNECE-R 123. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.22 Steering assist<br>Description: depending on the driving situation, the steering angle is automatically changed, without intervention by the driver. Relevant if the steering intervention occurs at a speed of more than 15 km/h, for example in accordance with UNECE-R 79. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operative (for example audio components) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.23 Height levelling<br>Description: the system changes the clearance between vehicle chassis and the road. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.24 Emergency braking signal<br>Description: during strong deceleration, hazard warning lights and/or additional luminous surfaces are activated and/or the following traffic is warned by flashing brake lights, for example in accordance with UNECE-R 48 or UNECE-R 13. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.25 Pre-crash system<br>Description: in a critical driving situation, the vehicle is prepared for the crash so that the risk of injury to the passengers and/or other road users is reduced. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation (for example power windows) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.26 Tyre pressure warning<br>Description: the system detects loss of tyre pressure through integrated sensors and/or by implausible values for wheel speed, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 141. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.27 Traction control<br>Description: the system prevents the drive wheels spinning during acceleration by applying brake force. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.28 Superimposed steering<br>Description: depending on the driving situation, the system varies the transmission ratio of the steering. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating (for example Power assistance not working), or implausible operation (for example inconsistency between the angle of the steering wheel and the angle of the wheels.)<br><br>Steering affected | | X | X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.29 Roll over protection (active)<br>Description: in the event of an imminent rollover, support elements | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| are extended to secure the survival space, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 21. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.30 Hydrogen installation<br>Description: the hydrogen is stored in the vehicle and is used to propel the vehicle, either by combustion in an internal combustion engine or by conversion in a fuel cell with an additional electric engine. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.31 Start-up aid<br>Description: aiding start-up, for example by raising the lift axle or by momentarily applying brake pressure or by automatic release of the parking brake. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.32 Trailer stabilization<br>Description: through selective braking of the trailer by the service brakes, the complete vehicle train is stabilised. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.33 Endurance brake<br>Description: an additional braking system that can maintain braking over a period of time without a significant reduction in performance, for example in accordance with UNECE-R 13 and Regulation (EU) 2019/2144. | Visual inspection (with command activated and not activated, if possible) complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example Insecure connectors or mountings) | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (j) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X<br><br><br><br><br> | <br><br>X<br><br><br> | <br><br><br><br>X |
| 10.34 Differential lock deactivation<br>Description: when this system is activated, the differential locks are unlocked depending on parameters (for example wheel slip, steering angle, speed). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X<br><br><br><br><br> | <br><br>X<br><br><br> | <br><br><br><br>X |
| | | (g) System or components not operating, or implausible operation<br><br><br><br>Steering affected | | X<br><br><br><br> | <br><br><br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X<br><br><br><br><br> | <br><br>X<br><br><br> | <br><br><br><br>X |
| | | (a) System or any component missing | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| 10.35 Electronically controlled leading and trailing axle<br>Description: the steered axles are additional axles with electronically controlled steering. The steering force is generated by a hydraulic pump or by the lateral force on the wheels. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation<br>Steering affected | | X | <br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| 10.36 Electronic steering damper<br>Description: Steering damping is controlled electronically. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation<br><br>Steering affected | | X | X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.37 Bus stop brake<br>Description: the system ensures the application of brake pressure when stationary, independent of the brake pedal activation. Buses can only start moving when the doors are closed. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X<br><br> | <br><br>X |
| 10.38 Kneeling<br>Description: the system allows a road vehicle to be lowered to make it easier for passengers to board and disembark. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X<br><br> | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X<br><br> | <br><br>X |
| 10.39 Steering brake<br>Description: during cornering, dosed braking is applied to one or more wheels. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation<br><br><br>Steering affected | | X | <br><br><br>X |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.40 Tyre pressure control<br>Description: according to the requirement of the driver, the system regulates the tyre pressure. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| 10.41 Sliding joint stabilisation<br>Description: The articulated joint is stabilised by damping, depending on vehicle speed, cylinder pressure of the articulated dampers, steering and articulation-angle. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | <br>X | <br><br>X |
| 10.42 Four-wheel parking brake<br>Description: the system applies the maximum brake pressure in the wheel cylinders at all four wheels. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.43 Front-wheel locking device<br>Description: front wheel suspension, which permits lateral inclination of the motorcycle, can be locked and unlocked by an electric actuator. Above a certain speed, it is automatically unlocked. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X<br><br> | <br><br>X |
| 10.44 Adaptive headlights<br>Description: the illumination of the surrounding road area and/or the direct illumination of road users in the danger area in front of the vehicle is optimised by dynamic adaption of the light beams. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br>X<br> | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br>X<br> | <br><br>X |
| 10.45 Electrically actuated parking brake<br>Description: the parking brake function is triggered or transmitted electronically or electromechanically. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.46 Lane change assistance<br>Description: at a lane change, the system warns the driver about vehicles in the next lane and steers the vehicle back. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.47 Lane keeping assistance<br>Description: the system warns the driver when the vehicle is unintentionally leaving its lane and steers the vehicle back, e.g. in accordance with Regulation (EU) 2019/2144 and Commission Implementing Regulation (EU) 2021/646*. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.48 Automatic eCall<br>Description: the system is triggered automatically by in-vehicle sensors or manually, it transmits a minimum set of data (EN 15722) via mobile communication network and establishes an audio connection based on the (emergency) number | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| between the vehicle passengers and the public safety answering point, in accordance with Regulation (EU) 2015/758 of the European Parliament and of the Council**, and Commission Delegated Regulation (EU) 2017/79***. | The verification of the minimum set of data (MSD) includes checking whether:<br>- the mandatory fields are filled with plausible information;<br>- the deviation between in-vehicle system (IVS) location and true location is less than 150 meters. The calculation can be done according to point 2.5 of Annex I of Commission Delegated Regulation (EU) 2017/79;<br>- the deviation between the MSD timestamp and the timestamp of the reading is less than 60s. | (e) Warning device (eCall MIL) shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board | X | X | X |
| | | (g) System or components not operating, or implausible operation:<br>- audio components (for example failing echo-test);<br>- minimum set of data incorrect | | X | |
| | | (h) Other failure (for example mobile network communication device, electronic control unit, or GPS signal failure)<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board | X | X | X |
| 10.49 Active roll stabilisation<br>Description: via appropriate actuators the system produces a roll movement which counters the vehicle's body roll movement depending on the current driving situation. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br>Affecting safe operation of the vehicle<br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.50 Camera monitor<br>Description: the system which generates at least a part of the indirect field of vision by a camera monitor combination (for example in accordance with UNECE-R 46). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.51 Acoustic vehicle alerting<br>Description: at low speed, the system generates an external, specific sound in order to warn, for example pedestrians. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operative, or not respecting type-approved noise levels | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| 10.52 Basic exterior lights<br>Description: the system switches on/switches off the basic lighting devices (for example indicators). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.53 Automated lane keeping system (ALKS)<br>Description: a system which is activated by the driver, and which keeps the vehicle within its lane by controlling the lateral and longitudinal movements of the vehicle for extended periods without the need<br>for further driver input (for example in accordance with UNECE-R 157). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.54 Turning assistant<br>Description: a system to inform the driver of a possible collision with a traffic participant (for example bicycle) near side (for example in accordance with UNECE-R 151). | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.55 Tachograph<br>Description: a system to record the driving time, breaks, rest periods as well as periods of other work undertaken by a driver, for example, in accordance with Regulation (EU) No 165/2014 of the European Parliament and of the Council****. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing (for example seals, plaques), or not fitted in accordance with the requirements (for example plaque out of date). | | X | |
| | | (b) System or components damaged (for example illegible plaque) | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation (for example tampered or manipulated, or size of tyres not compatible with calibration parameters, or incorrect set speed, if checked). | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.56 Intelligent speed assistance<br>Description: system to aid the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1958*****. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (g) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.57 Reversing detection<br>Description: system to make the driver aware of people and objects at the rear of the vehicle with the primary aim of avoiding collisions when reversing, for example in | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| accordance with Regulation (EU) 2019/2144 and UNECE-R 158. | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.58 Driver drowsiness and attention warning<br>Description: system that assesses the driver's alertness through vehicle systems analysis and warns the driver if needed, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2021/1341******. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.59 Advanced driver distraction warning<br>Description: system that helps the driver to continue to pay attention to the traffic situation and that warns the driver when he or she is distracted, for example in accordance with Regulation (EU) 2019/2144 and Commission Delegated Regulation (EU) 2023/2590*******. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.60 Event data recorder<br>Description: system with the only purpose of recording and storing critical crash-related parameters and information shortly before, during and immediately after a collision, for example in accordance with Regulation (EU) 2019/2144, | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| Commission Delegated Regulation (EU) 2022/545********, and UNECE-R 160. | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation | X | | |
| | | (g) System or components not operating, or implausible operation (for example data not accessible) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation | X | | |
| 10.61 Automated driving system<br>Description: systems that are capable of performing the entire dynamic driving task of the fully automated vehicle on a sustained basis, for example in accordance with Regulation (EU) 2019/2144 and Commission Implementing Regulation (EU) 2022/1426*********. | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the necessary data is made available, with the use of electronic interface | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |
| | | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| | | (g) System or components not operating, or implausible operation (for example HMI) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | X | X |
| 10.62 Driver availability monitoring systems (automated driving)<br>Description: System that assesses | Visual inspection complemented, where made possible by the technical characteristics of the vehicle and where the | (a) System or any component missing | | X | |
| | | (b) System or components damaged | | X | |

PUBLIC

| | | | | | |
|---|---|---|---|---|---|
| whether the driver is capable of taking over the driving function of a self-driving vehicle, if necessary, in certain situations, for example in accordance with Regulation (EU) 2019/2144 and UNECE-R 157. | necessary data is made available, with the use of electronic interface | (c) Software version or -integrity incorrect | | X | |
| | | (d) Wiring damaged | | X | |
| | | (e) Warning device shows system malfunction. | | X | |
| | | (f) System indicates failure via the electronic vehicle interface<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |
| | | (g) System or components not operating, or implausible operation (for example HMI) | | X | |
| | | (h) Other failure<br>Not affecting the safe operation<br><br>Affecting safe operation of the vehicle<br><br>Danger to health of persons on board or of other road users | X | <br><br>X | <br><br>X |

PUBLIC

* Commission Implementing Regulation (EU) 2021/646 of 19 April 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 motor vehicles with regard to their emergency lane-keeping systems (ELKS) (OJ L 133, 20.4.2021, p. 31, ELI: http://data.europa.eu/eli/reg_impl/2021/646/oj).

** Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC (OJ L 123, 19.5.2015, p. 77, ELI: http://data.europa.eu/eli/reg/2015/758/oj).

*** Commission Delegated Regulation (EU) 2017/79 of 12 September 2016 establishing detailed technical requirements and test procedures for the EC type-approval of motor vehicles with respect to their 112-based eCall in-vehicles systems, of 112-based eCall in-vehicle separate technical units and components and supplementing and amending Regulation (EU) 2015/758 of the European Parliament and of the Council with regard to the exemptions and applicable standards (OJ L 12, 17.1.2017, p. 44, ELI: http://data.europa.eu/eli/reg_del/2017/79/oj).

**** Regulation (EU) No 165/2014 of the European Parliament and of the Council of 4 February 2014 on tachographs in road transport, repealing Council Regulation (EEC) No 3821/85 on recording equipment in road transport and amending Regulation (EC) No 561/2006 of the European Parliament and of the Council on the harmonisation of certain social legislation relating to road transport (OJ L 60, 28.2.2014, p. 1, ELI: http://data.europa.eu/eli/reg/2014/165/oj).

***** Commission Delegated Regulation (EU) 2021/1958 of 23 June 2021 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their intelligent speed assistance systems and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation (OJ L 409, 17.11.2021, p. 1, ELI: http://data.europa.eu/eli/reg_del/2021/1958/oj).

****** Commission Delegated Regulation (EU) 2021/1341 of 23 April 2021 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their driver drowsiness and attention warning systems and amending Annex II to that Regulation (OJ L 292, 16.8.2021, p. 4, ELI: http://data.europa.eu/eli/reg_del/2021/1341/oj).

******* Commission Delegated Regulation (EU) 2023/2590 of 13 July 2023 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of certain motor vehicles with regard to their advanced driver distraction warning systems and amending that Regulation (OJ L, 2023/2590, 22.11.2023, ELI: http://data.europa.eu/eli/reg_del/2023/2590/oj).

******** Commission Delegated Regulation (EU) 2022/545 of 26 January 2022 supplementing Regulation (EU) 2019/2144 of the European Parliament and of the Council by laying down detailed rules concerning the specific test procedures and technical requirements for the type-approval of motor vehicles with regard to their event data recorder and for the type-approval of those systems as separate technical units and amending Annex II to that Regulation (OJ L 107, 6.4.2022, p. 18, ELI: http://data.europa.eu/eli/reg_del/2022/545/oj).

********* Commission Implementing Regulation (EU) 2022/1426 of 5 August 2022 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 the automated driving system (ADS) of fully automated vehicles (OJ L 221, 26.8.2022, p. 1, ELI: http://data.europa.eu/eli/reg_impl/2022/1426/oj).

(2) Annex III is amended as follows:

The first sentence in Chapter II, Section 3, is replaced by the following:

‘Table 1 sets out rules that shall be applied during a cargo securing inspection to determine whether the condition of the transport is acceptable.’;

(3) Annex IV is amended as follows:

on the front side of the form, point 6 is replaced by the following:

‘6. Category of vehicle[(a)]

(a) $N_1$ (up to 3,5 t) □

$N_2$ (3,5 to 12 t) □

$N_3$ (more than 12 t) □

$O_3$ (3,5 to 10 t) □

$O_4$ (more than 10 t) □

$M_2$ (more than 9 seats[(b)], up to 5 t) □

$M_3$ (more than 9 seats[(b)], more than 5 t) □

T1b □

T2b □

T3b □

T4.1b □

T4.2b □

PUBLIC

T4.3b □

Other vehicle category:

(please specify).';

point 10 is amended as follows:

(i) point (10) is replaced by the following:

'(10) Electronic safety systems[(f)]';

(ii) the following point (11) is added:

(11) Cargo securing[(f)]';

the reverse side of the form is amended as follows:

(i) the following item 4.14 is inserted:

'4.14 High-voltage systems

4.14.1 Electrical safety

4.14.2 Traction battery cover

4.14.3 Traction battery

4.14.4 High-voltage electrical wiring

4.14.5 High-voltage electrical and electronical equipment

4.14.6 Insulation resistance

PUBLIC

4.14.7 Anti-starting system';

(ii) items 8.2.1 to 8.2.2.2 are replaced by the following:

'8.2.1 Exhaust emissions control equipment

8.2.2 Exhaust emission measurement – positive ignition engines

8.2.2.1 Particle number measurement

8.2.2.2 Gaseous emissions

8.2.2.3 $NO_X$ measurement

8.2.3 Exhaust emission measurement – compression ignition engines

8.2.3.1 Particle number measurement

8.2.3.2 Opacity

8.2.3.3 $NO_X$ measurement';

(iii) the following item 10 is added:

'10. Electronic safety systems in accordance with Annex II to Directive 2014/47/EU'.

PUBLIC

(4) Annex V is replaced by the following:

'*ANNEX V*

STANDARD FORM FOR REPORTING TO THE COMMISSION

The standard form shall be drawn up in a computer-processable format and transmitted by electronic means using standard office software.

Each Member State shall produce both the following tables:

(a) one summary table per year;
(b) for each country of registration of vehicles checked in a more detailed inspection, a separate table containing information on checked and detected deficiencies for each vehicle category.

PUBLIC

**Summary table**

**of all (initial and more detailed) inspections**

Reporting Member State: Reporting period year [X]

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country of registration | Number of vehicles checked (1) | Number of vehicles failed (2) | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| Belgium | | | | | | | | | | | | | | | | | | | | |
| Bulgaria | | | | | | | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | | | | | | | |
| Denmark | | | | | | | | | | | | | | | | | | | | |
| Germany | | | | | | | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | | | | | | | |
| Greece | | | | | | | | | | | | | | | | | | | | |
| Spain | | | | | | | | | | | | | | | | | | | | |
| France | | | | | | | | | | | | | | | | | | | | |
| Croatia | | | | | | | | | | | | | | | | | | | | |
| Italy | | | | | | | | | | | | | | | | | | | | |
| Cyprus | | | | | | | | | | | | | | | | | | | | |
| Latvia | | | | | | | | | | | | | | | | | | | | |
| Lithuania | | | | | | | | | | | | | | | | | | | | |

PUBLIC

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country of registration | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| Luxembourg | | | | | | | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | | | | | | | | | | | |
| Malta | | | | | | | | | | | | | | | | | | | | |
| Netherlands | | | | | | | | | | | | | | | | | | | | |
| Austria | | | | | | | | | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | | | | | | | | | |
| Portugal | | | | | | | | | | | | | | | | | | | | |
| Romania | | | | | | | | | | | | | | | | | | | | |
| Slovenia | | | | | | | | | | | | | | | | | | | | |
| Slovakia | | | | | | | | | | | | | | | | | | | | |
| Finland | | | | | | | | | | | | | | | | | | | | |
| Sweden | | | | | | | | | | | | | | | | | | | | |
| Albania | | | | | | | | | | | | | | | | | | | | |
| Andorra | | | | | | | | | | | | | | | | | | | | |
| Armenia | | | | | | | | | | | | | | | | | | | | |
| Azerbaijan | | | | | | | | | | | | | | | | | | | | |

PUBLIC

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country of registration | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| Belarus | | | | | | | | | | | | | | | | | | | | |
| Bosnia and Herzegovina | | | | | | | | | | | | | | | | | | | | |
| Georgia | | | | | | | | | | | | | | | | | | | | |
| Kazakhstan | | | | | | | | | | | | | | | | | | | | |
| Liechtenstein | | | | | | | | | | | | | | | | | | | | |
| Monaco | | | | | | | | | | | | | | | | | | | | |
| Montenegro | | | | | | | | | | | | | | | | | | | | |
| North Macedonia | | | | | | | | | | | | | | | | | | | | |
| Norway | | | | | | | | | | | | | | | | | | | | |
| Republic of Moldova | | | | | | | | | | | | | | | | | | | | |
| Russian Federation | | | | | | | | | | | | | | | | | | | | |
| San Marino | | | | | | | | | | | | | | | | | | | | |
| Serbia | | | | | | | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | | | | | | | |
| Tajikistan | | | | | | | | | | | | | | | | | | | | |
| Türkiye | | | | | | | | | | | | | | | | | | | | |
| Turkmenistan | | | | | | | | | | | | | | | | | | | | |

PUBLIC

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country of registration | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| Ukraine | | | | | | | | | | | | | | | | | | | | |
| United Kingdom | | | | | | | | | | | | | | | | | | | | |
| Uzbekistan | | | | | | | | | | | | | | | | | | | | |
| Other third countries (please specify) | | | | | | | | | | | | | | | | | | | | |

(1) Total number of vehicles checked (at initial and more detailed inspections), including those without deficiencies, as well as those with minor, major or dangerous deficiencies.

(2) Failed vehicles with major or dangerous deficiencies as per Annex IV.

PUBLIC

**Results of more detailed inspections**

Reporting Member State:
Name of the reporting Member State
Country of Registration: PERIOD: year [x]
Name of the country of vehicle registration

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of vehicles checked (1) | Number of vehicles failed (2) | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| | | | | | | | | | | | | | | | | | | | | |

Defect detail

| | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (0) Identification | | | | | | | | | | | | | | | | | | | | |
| (1) Braking equipment | | | | | | | | | | | | | | | | | | | | |
| (2) Steering | | | | | | | | | | | | | | | | | | | | |
| (3) Visibility | | | | | | | | | | | | | | | | | | | | |
| (4) Lighting equipment and electrical system | | | | | | | | | | | | | | | | | | | | |
| (5) Axles, wheels, tyres, suspension | | | | | | | | | | | | | | | | | | | | |
| (6) Chassis and chassis attachments | | | | | | | | | | | | | | | | | | | | |

PUBLIC

| Vehicle Category: | $N_1$ | | $N_2$ | | $N_3$ | | $M_2$ | | $M_3$ | | $O_3$ | | $O_4$ | | T1b, T2b, T3b, T4.1b, T4.2b, and T4.3b | | Other categories (optional) | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed | Number of vehicles checked | Number of vehicles failed |
| | | | | | | | | | | | | | | | | | | | | |
| | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed | Checked | Failed |
| (7) Other equipment including tachograph and speed limitation devices | | | | | | | | | | | | | | | | | | | | |
| (8) Nuisance including emissions and spillage of fuel and/or oil | | | | | | | | | | | | | | | | | | | | |
| (9) Supplementary tests for $M_2/M_3$ | | | | | | | | | | | | | | | | | | | | |
| (10) Electronic safety systems | | | | | | | | | | | | | | | | | | | | |
| (11) Cargo securing | | | | | | | | | | | | | | | | | | | | |
| Total number of failures | | | | | | | | | | | | | | | | | | | | |

(1) Total number of vehicles checked (at initial and more detailed inspections), including those without deficiencies, as well as those with minor, major or dangerous deficiencies.

(2) Failed vehicles with major or dangerous deficiencies as per Annex IV.